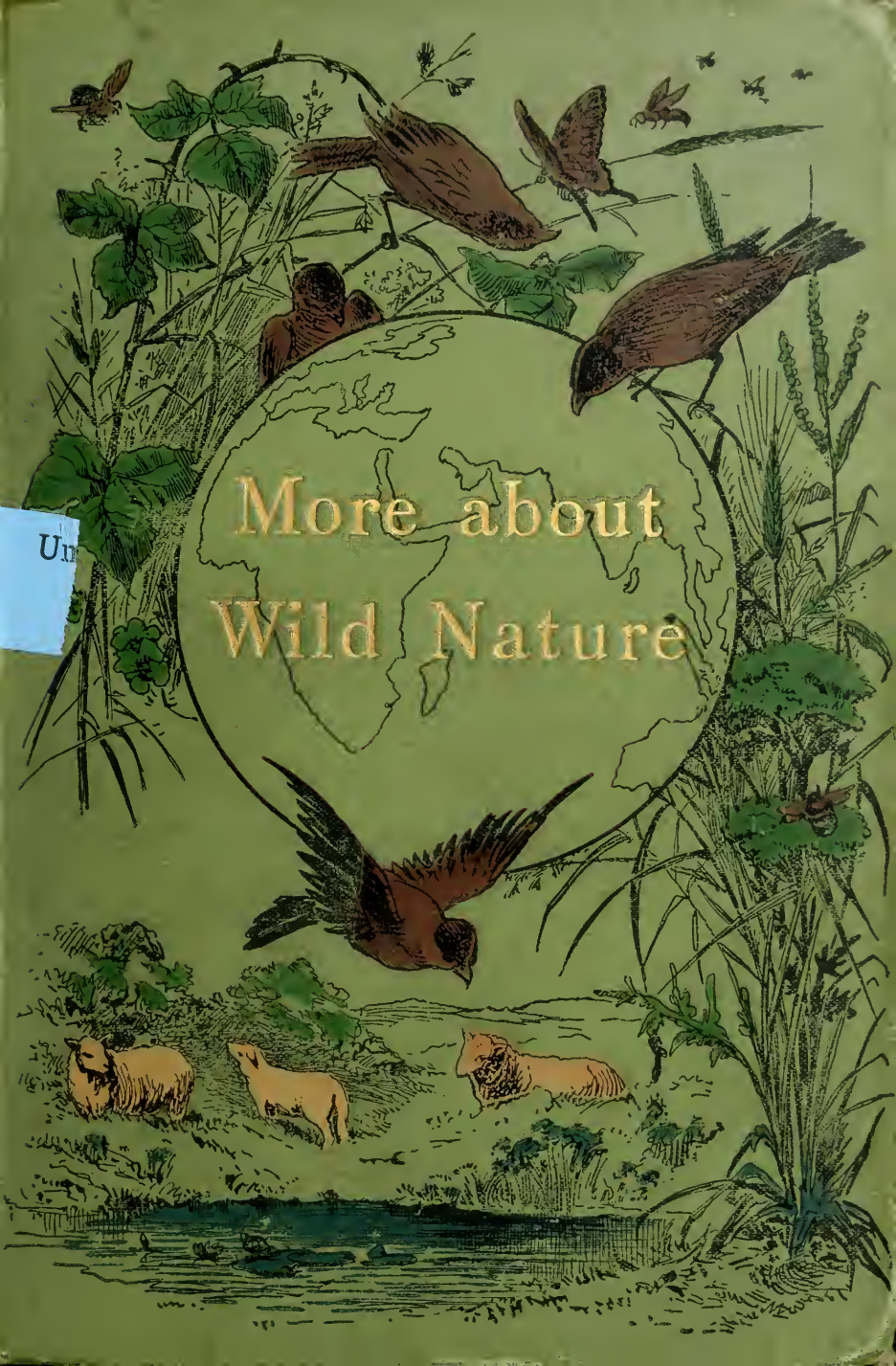

More about
Wild Nature

Thornely Barbutt Gibson.
August 11th, 1895.

MORE ABOUT WILD NATURE

BY THE SAME AUTHOR.

WILD NATURE WON BY KINDNESS.

Third and Cheaper Edition, paper, **1s.**

"Mrs. Brightwen has written some pleasant and very interesting sketches of the habits of various pets which she has made. . . . The book is one which may be warmly recommended for the simplicity with which it is written and the power of observation which it displays."—*Athenæum.*

LONDON: T. FISHER UNWIN.

Eliza Brightwen

MORE ABOUT
WILD NATURE

BY

MRS. BRIGHTWEN

Author of "Wild Nature Won by Kindness"

WITH ILLUSTRATIONS BY THE AUTHOR

SECOND EDITION

London

T. FISHER UNWIN

PATERNOSTER SQUARE

MDCCCXCIII

1893

To

PROFESSOR SIR WILLIAM HENRY FLOWER, K.C.B., F.R.S., ETC.

DEAR SIR WILLIAM FLOWER,—

Some of the most delightful hours of my life have been those which it has been my privilege to spend in the enjoyment of the vast collections over which you preside.

But my capacity for enjoying these public treasures has in no small degree been enhanced by the stimulus which your conversation has given to my study of Nature whenever I have had the advantage of hearing you speak of them in private.

Is it asking too much, then, if I venture to beg you to accept the dedication of a little volume which desires to follow, at however great a distance, in the footsteps of the leaders of science?

Pray believe me to be

Yours very faithfully,

ELIZA BRIGHTWEN.

2090968

PREFACE.

WHEN I put forth, with much diffidence and many apprehensions, the simple account of my adventures with my favourite animals and birds, I little dreamed of the kind reception which it was destined to meet with from the critics and from the general public. That several thousand copies of "Wild Nature Won by Kindness" would be sold within the first twelve months of publication was not within my most sanguine anticipations.

Such a success, however, has been all the more gratifying because it was so entirely unexpected, and I take it to prove not any peculiar merit in my little series of narratives, but rather the depth of that love of animated nature which is engrained in English hearts.

That the genuine instinct of all normal English men and women is one of humanity towards dumb creatures is my firm conviction. Where cruelty is shown I would fain believe that more than half of it arises from ignorance rather than deliberate intention, and, if it be so, then such simple books as mine may not be without a direct service to others.

They tend, I hope, to induce, by an intimate study of the lives of animals and birds, such a knowledge as can only be attained by the personal care of pets. When we discover in the creation around us such tender traits of reciprocal love and devotion, as the unselfishness of maternal affection, or as those almost human forms of generosity which we observe in birds and animals, it must be a hard heart indeed that is not melted into kindly feeling towards wild creatures in which

these qualities of something very like soul are found.

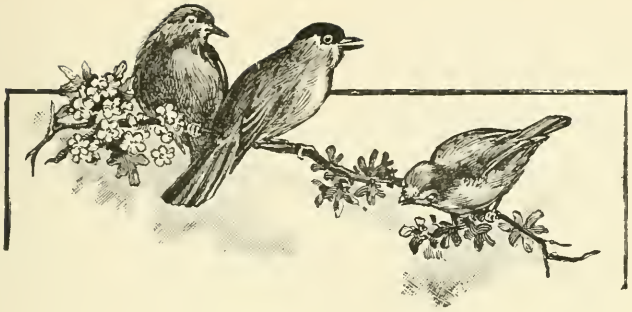
We little know how often, in their speechless way, the living creatures around us appeal for our help and sympathy, and do not obtain it simply because we lack the tender faith of the pious St. Francis of Assisi, whose creed it was that all created things are our dumb brethren and sisters.

There are comparatively few, it may be, who enjoy my uninterrupted opportunities of keeping and studying wild creatures at home. I am therefore not without a hope that I may be able to offer to those who live in towns, or who are in other ways hindered from the free study of natural history, certain fresh items of information which may be of interest to them. In the desire, then, that the following pages may tend to lift still further the veil which divides us from the kingdom of fur and feathers, and so increase the circle of students and lovers of pet creatures, I send forth this second volume to the many unknown friends which the first secured me, thanking them at the same time most sincerely for their great kindness and indulgence.

My cordial acknowledgments are due to Mr. Theo. Carreras for the artistic and admirable way in which he has re-drawn my own rough sketches for several of the illustrations in this book.

I may mention that several of the later chapters, *i.e.*, those on "Home Museums" and "Books of Feathers," have already appeared in the Selborne Society's Magazine.

ELIZA BRIGHTWEN.



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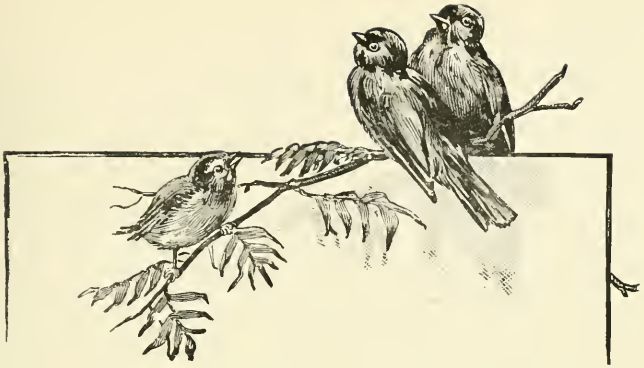

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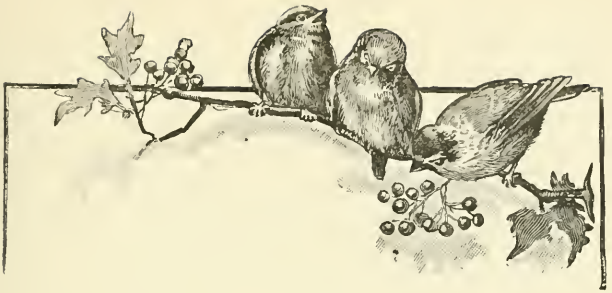
THE GROVE

INDOOR PETS.



KATIE THE SHREW.

(*Sorex Vulgaris.*)

AFTER my experience with the water shrews[1] the desire seized me to know something of the life and habits of the smaller species — the common land shrew, which is so often picked up dead, and comparatively so seldom seen alive. From all I could learn, it seemed to be a little animal difficult to keep in health, not much being known about its diet. When in past years I had tried keeping land shrews, no amount of care would prevent their dying within a few hours of their capture.

[1] See "Wild Nature Won by Kindness," pp. 121–125.

Shrews are very pugnacious, and possibly those specimens had been already injured in fighting with each other. At last a healthy little shrew was secured, and I did my best to prepare a comfortable home for it in a glass globe. That I find to be quite the best kind of receptacle for small rodents, far better than any wire cage, as they cannot climb up or leap out, and as they do not injure their little noses by incessantly pressing against the bars, which is apt to wear off the skin and make them look miserable. I put dry earth into the globe as a foundation, a night-light glass to hold water, a handful of dry grass and some cotton-wool, and then the little mousie was put in to survey the premises.

Shakespeare seemed to suggest the most appropriate name for the shrew I proposed to tame, so she was called Katie, and she has learned to know her name and appear in answer to it.

Her first business was to make a nest, at which she laboured furiously, as if it must be done within a given time. She took mouthfuls of the dry grass, and weaving it together with the cotton-wool, formed a dome-shaped hut like a wren's

nest, with three openings, one for ingress, one for egress, and one towards her water supply. Then she constructed little runs or covered ways in and out of the rest of the bedding material, and, by the second day, her domain was all in order, and she seemed quite reconciled to her captivity.

I find she is one of nature's useful scavengers, for her favourite diet is any dead bird or animal that can be found for her.

A sparrow killed itself against the window, and wishing to see what Katie would do with it, I put it into her globe. Next morning it was not to be seen, she had scooped out the earth underneath it after the manner of the burying beetles, and then had strewn loose grass over the bird so as to hide her prey, and enable her in secret to enjoy the feast it afforded. Soon afterwards a dead field-mouse was found and given to her. I am sorry to say she welcomed her deceased cousin, and devoured him with evident delight. A full-grown mouse will barely supply enough food for Katie for four and twenty hours, for by that time all the flesh and most of the bones will have disappeared, only the skin, paws, tail, and part of the skull being left.

The little cannibal is then on the rampage, and like Oliver Twist, "looking for more."

I am often amused at the offerings of dead mice from pantry and garden which are presented at Katie's shrine. When this provision fails a fowl's head or a small piece of under-done game has to be substituted.

Common earthworms, bluebottle flies, meal-worms, and especially slugs are staple articles of food, so there is no difficulty in feeding the little animal, provided *enough* food is supplied. The shrew is very voracious, and I imagine that, like the mole, it quickly dies if its stores run short. I believe this may account for the numbers found dead in the month of August, when the hard, parched ground fails to yield suitable food for the shrews.

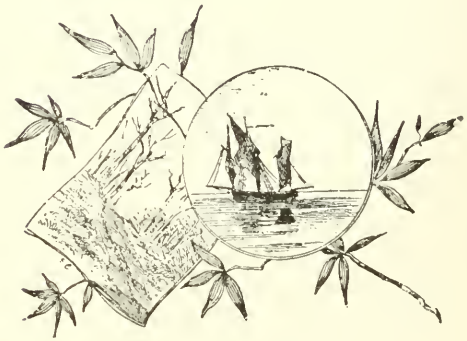
I constantly marvel at the amount of vigour this furry mite displays. When I call her by her name, the family mansion in which Katie resides begins to heave up and down, and out she rushes in great excitement, her little mobile snout up-raised and sniffing in all directions to find out what has happened; then she darts about her runs, on to the roof of her nest, in and out until

she finds the offered dainty, which she will take from my fingers and then rush off to hide it until it is wanted.

I gave the little creature an empty match box as a sort of summer-house, but so minute is she that two or three such shrews could easily find room in the box. It is kept as a sort of larder; when I look in it sometimes I find a choice collection of mealworms, flies, and bits of meat, which she has stored there, I suppose, in order to become gamey.

The shrew has a most irascible temper, every action shows it. It snatches its food, tears about at full speed, does everything in a tremendous hurry, and I tremble to think what would happen if I were to put another shrew into the globe. The struggle would be short and sharp, a decided case of "pistols for two and coffee for one"! for most assuredly only one would survive the conflict. Still the little creatures are remarkably interesting if only for their prodigious amount of vitality, their usefulness in ridding us of decaying matter, and the secret life they live, for, although very few people ever see them alive or even know of their existence, yet they do exist in every hedgerow in the country,

and are carrying on their beneficent work all unknown to us, thus affording another glimpse of the marvellous way in which things great and small are fulfilling the purposes of the great Creator.



POLLY AND RUBY.

AS I recall my lifelong experience with bird pets, I think of one that was very dear to me in early youth.

He was a remarkably handsome parrot with brilliant green, red, and yellow feathers, and eyes of the brightest orange. Polly had been a great pet on board the ship in which he came from India, and when he was allowed out of his cage he would climb about the rigging as cleverly as any sailor, and was a universal favourite.

One day when the captain was taking a noonday

nap in his cabin, Polly crept in. Seeing a watch and chain on the table he was irresistibly attracted to them, and with his powerful beak he set to work upon the chain. When the captain awoke from his siesta he found all the links undone, his chain was a heap of fragments, and there sat Polly crowing in high glee at his successful bit of mischief.

When any one entered the room where our pet was kept he always greeted them with, "And are you come"? "Scratch a poll, Polly;" and down would go his pretty green head to be stroked and caressed, a soothing process of which he never seemed to tire.

When I was a little girl I used to rise at six o'clock, and taking Polly on my wrist away I went bridle in hand out into the fields, where my pet donkey would come to meet me. The bridle would be soon adjusted, and "we two," Polly and I, enjoy our early canter through the dewy grass. I needed no saddle, from long practice I had learnt to ride securely sitting sideways and holding a lock of Shaggy's woolly coat. Feeling the fresh breeze and drinking in the thousand delicious

odours of spring and summer I tasted the purest enjoyment possible to one so open as myself to all nature's delights.

The tiny feet of the donkey made no sound on the grass, so I could watch the habits of wild creatures to great advantage. For instance, in skirting the banks of the river Mole, which ran through our fields, I used to see kingfishers perched on branches close to the water with eyes intent upon their finny prey; the brown water-rats sitting up like little kangaroos cleaning their fur; a water-hen with stealthy tread picking her way amongst the reeds. All these were charming glimpses into wild nature. With equal facility I could study the habits and ways of birds on land. Their various songs, the food they each liked, their nesting places, all were silently noted, and the life histories of special birds could be thus watched day by day. After his ride Polly would be placed on a tall tulip tree where he loved to sit all day, occasionally calling out to the astonishment of passers by, "Poll the king's trumpeter, root-ti-too-too-too," and then laughing in a most infectious way if he succeeded in attracting attention.

One day he climbed to the very top of the tree quite out of reach, a heavy rain came on and soaked his feathers, but with undaunted spirit he talked, laughed, and shouted with pleasure ; it was not till evening that he made his descent, and then it was a very disreputable looking bunch of draggled plumes that represented our usually gay-coloured parrot.

Amongst other pets we had a clever little Scotch terrier, between whom and the parrot a bitter feud existed. Polly, however, could hold his own, as was proved one day on the lawn. The terrier made a rush at the bird, but Polly quietly threw himself on his back, and whichever way the dog tried to attack him, his strong talons and beak were in full play, and he remained thus on the defensive, shrieking with all his might until help arrived. The beak, aforesaid, was a terrible weapon of defence ; I bear to this day the mark of one of his bites, and to gentlemen his dislike was so great that it was not safe to have him at liberty in their presence. Poor old Polly ! it is unkind to speak ill of the dead. After a happy life of nearly forty years in our family he drooped and died, and all

that remains of him besides these old memories, is a glowing page of his lovely plumage in one of my feather-books.

This parrot was an instance of a bird already tamed before we possessed him, but of late years I have delighted in winning the hearts of absolutely wild birds, and inducing them to come in and live with me at intervals through the day. It takes time and patience to do this and mealworms are also indispensable, for at first one must win wild birds through their appetites, and there is hardly an English insect-eating bird that can resist a lively mealworm! Robins are quite the easiest birds to tame, for, when the days become chilly in autumn, they will come in at the windows. If any tempting food is gently thrown near him, a robin soon learns that he is welcome, and will remain for hours quietly investigating all the furniture in the room, regaling one with a sweet, low song, and sometimes having a fight in the looking-glass with his own reflection. One of these confiding little birds sometimes sits on my inkstand gazing at me with his large black eyes whilst I am writing. I often wish I could divine what ideas are passing through his birdish

brain, what views he takes of life in general, and of me in particular. He has a very expressive language of his own, he tells me when he is hungry by coming close to my chair and even singing his petition for bread or mealworms; if he wishes the window opened he gives me no peace until I attend to his behests; and when anything bright and glittering is brought into the room, his careful investigation shows how strongly curiosity is developed in birds.

The innate character of birds can only be thus studied when, by long-continued kindness, they learn to feel at ease with you, and, as it were, take for granted that you will understand what they desire.

I often wish young people who possess pets would care less for caging and keeping a handsome bird, and give more thought to bringing out its mental powers, and making it perfectly happy in its captivity.

I might illustrate what I mean in the history of Ruby, a tiny redpole I once possessed.

I saw in an advertisement that a redpole, that had been trained to draw up its water, was to be

had for a few shillings. I sent for it, and Ruby came nearly a hundred miles by railway to our station, where I drove to meet him. I found that he was attached by a small chain to a circular piece of wood, and through a small hole a tiny bucket fell into a glass of water, and when Ruby desired to drink he had to take hold of the chain of the bucket and pull it up link by link till he obtained his drink of water. He was a plucky little bird, and did his best to look bright and cheery under trying circumstances, but I could see he was in bodily distress, and after two days I determined to release him from his bondage. Taking the feathered mite carefully in my hand, I found on examination that there were two bands of tape fastened round his body and to these the chain was attached. It must have been a wretched life for a bird to wear such shackles, and I confess it was with great pleasure that I released Ruby from his bonds.

When I had placed him in a comfortable cage with plenty of food and water, I knew life must be a different thing to him. He would soon have forgotten his little trick of drawing up water had I

not arranged the bucket in his cage so that when I filled it with hempseeds he could draw them up for his own pleasure, and this accomplishment was often shown to my friends.

In the next cage on the table lived a hen canary, who was a constant source of interest to Ruby. When I opened his cage-door he would directly fly to the top of her cage and gaze admiringly at her through the bars.

Very soon both cages were opened and the different characters of the two birds afforded us much amusement.

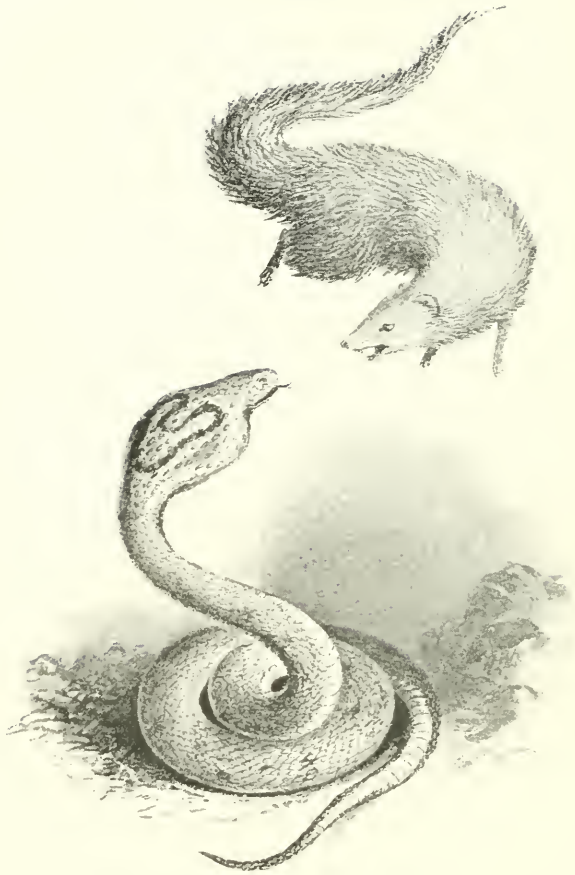
The canary snubbed her tiny lover most persistently, but he would never take "no" for an answer, and at last in order to see what they would do I provided a breeding cage, and the rather incongruous pair began housekeeping together. I supplied fine hair, pink and white cotton wool and moss, and with many twitterings and confabulations the nest was begun. It was the canary's first attempt and, determining to do the thing thoroughly, she built a perfect tower of Babel! I never saw such a nest before or since, it reached from the bottom of the nest box to the top of the

cage, barely leaving room for the little lady to sit on the summit of the pink and white erection. Then five little eggs appeared and the sitting began. It was very pretty to see Ruby at night nestling up to his mate, for he was so small there was room for them both upon the nest, and by this time his little yellow lady-love treated him with kindness, though never with the love that he lavished upon her. Twice over the pretty little drama was enacted, but never an egg was hatched. I was truly sorry for the disappointment of the patient builders, who deserved a better fate.

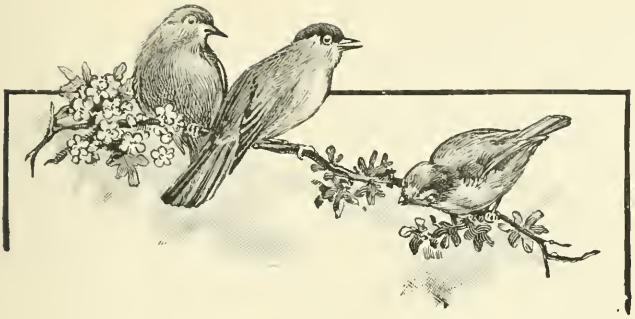
A few months later I added a very rich-coloured hen canary to my collection, and, finding they agreed together, I let her live with Ruby and his mate ; but, sad to say, he transferred his affections to the new bird and would, henceforth, only sit by her side, while the discarded wife was "out in the cold" on another perch. This was too cruel to be allowed, so the wife was given a cage to herself and placed elsewhere. That she was relieved and happy was proved by her becoming quite a charming singer, full of life and always ready with an answering chirp when spoken to. Now, in the

case of these birds how much character was shown!

To some people it may seem the height of triviality thus to record the doings of two little feathered fowl, but if young people are encouraged to take notice of small details, that valuable habit of patient close observation will be developed, which is one of the foundations of greatness in whatever occupation may be taken up in after life.



ICHNEUMON ATTACKING COBRA.



MUNGO THE ICHNEUMON.

(*Herpestes Ichneumon.*)

I THINK this paper might very well have been entitled "The sorrows of a lady afflicted with a mongoose!"

If ever there was an animal calculated to create anxiety and keep all one's powers of mind and body on the alert to circumvent its mischievous propensities, that creature is certainly the mongoose or ichneumon.

I must relate how an animal of this kind came into my possession.

A relative of mine in India wrote to me to say that he had sent off a mongoose in the care of an officer on board a steamer which would arrive by a certain date.

The animal had been perfectly tamed and I was told it would never bite or misbehave in anyway, and was a most amusing little creature.

In due time the ship arrived, and I sent a special messenger to the Tilbury Docks so that there should be no detention on the way here.

Mungo did not arrive until late, so his cage was placed in the conservatory for the night. Next morning early I visited him, and on opening the door of the cage out walked a curious grey-furred animal something like a large ferret with a splendid bushy tail tapering to a point. In a quiet gentle way the little creature began to make friends by creeping into my lap and from there up to my shoulder; it seemed to have no desire to run away, and only sniffed about to find out what its new surroundings were like. After Mungo had enjoyed a good meal of cooked meat and milk, I took off his heavy chain that he might roam about the room where he pleased. For a little while all went

well, but my friend was able to spring up to various cabinets on which were all kinds of curios—Wedgwood vases, &c., and I soon found these were in imminent peril. Over went a china flower-pot in no time, and the crash it made was so alarming to my agile pet that, in springing about, a few more knick-knacks went down. I had what would be called "a lively time" for the next few minutes until I had Mungo safely in my lap with the chain on his collar again. There was nothing for it but to put the little beastie into his travelling cage again until I could devise some safe way of keeping him. I happened to possess a wooden cottage-shaped abode with a wire front which was once inhabited by an owl, and in this my new pet lived for two months, and how full of adventures those months were I will try to relate.

Of course the little animal must have exercise every day, and I thought nothing would be easier than to chain him to a tree stem in the garden, where on fine days he would enjoy fresh air and sunshine. He was chained up and left to his own devices, but very soon there was a hue and cry, "Mungo is loose." Alas! how well I got to know that sound!

Happily he always came straight into one of the rooms, so that we did not fear losing him, but he soon set to work to upset every moveable thing, and again his liberty had to be curtailed. One day the pet was fastened outside the drawing-room French window. It seemed just the place to suit him, as he would have our society, without which he was always restless, and yet be in the fresh air, and I fondly hoped it was a place where he could do no mischief. I was called away for a short time only to find, with dismay, on my return, that the turf was hopelessly ruined, the gravel scratched up, while the irrepressible Mungo was sitting amongst the debris with such a comical air of innocence one could only laugh at him and send for the gardener and fresh turf to repair the damage, whilst I took the little sinner back to his cage. I once tethered my charge to one of the lower branches of a Deodar on the lawn where he could scratch up fir-needles and do anything he liked. I did think this was the right place at last and that nothing could go wrong there. In ten minutes time he came trotting into the room without his collar and began a lively frolic which meant the

usual destruction to glass and china. I went for his collar and found the string attached to it woven in and out of the branches, tied into endless knots, and the collar hanging in mid air where the poor

MUNGO.

little animal must have been suspended until he struggled sufficiently to get his head released. The worst trouble of all was when Mungo so gnawed the wooden bars of his cage that the wires became

loose and it would no longer keep him in safety, then indeed I began to wonder what was to be done with such an active creature. If we could be sure he would not slip his collar he might have been tied up to a little dog-kennel, but although the collar was as tight as he could well bear it, yet with a dexterous twist of his lithe little head he could at any time set himself at liberty. A strong cage of some sort was therefore a necessity. In my perplexity I took Mungo with me to the home farm that I might there obtain a box of some kind in which he might be kept in the meantime.

A very comical scene was enacted in the poultry yard. Some fifty or sixty fowls came trooping up and gathered round us in a circle expressing with varied cluckings their intense astonishment at the appearance of the little animal standing by my side. They might well be afraid, for they were gazing at a very determined enemy of their race, who would commit sad havoc in a poultry-yard if he ever had access to it.

One could fancy the cocks were saying to their dutiful wives, "My dears, pray be careful, I never saw such an awful animal before, and there is no

knowing what he will do." And just as, with outstretched necks, these notes of alarm were being sounded, Mungo made a spring forward and away went the entire flock of scared poultry helter-skelter till not one could be seen, the bravery of the cocks not being proof against such an unwonted apparition.

It is only fair to mention some of Mungo's brighter qualities. Such an absolutely good-tempered little animal I never met with before. He will, it is true, pretend to bite and take your finger in his mouth, but he is gentleness itself; like a playful kitten he will spring about, roll himself into a ball (his little head and bright eyes peering out from between his hind legs in the most comical manner), and put himself into a variety of graceful attitudes, a very emblem of fun and frolic.

A long tub-shaped basket is his great delight, he will get inside and roll over and over, playing with it by the hour together. The only sound the little animal makes is a low growl when he sees any small living thing, such as a mouse a frog or even an earwig. He was making a great fuss one

day, pawing something on the ground, with his long hair standing on end, and when I went to see what his quarry could be, it proved to be nothing more than a wandering mealworm. My poor old pet toad had a narrow escape from a tragical end, for Mungo slipped his collar one morning in the conservatory, and in a few minutes there he was

MUNGO.

carrying Sancho in his mouth! Happily the toad was rescued in time to save any harm being done to his corpulent little body.

As winter came on it was rather a problem how to secure a sufficiently warm place for an animal accustomed to a tropical climate. At last the difficulty was solved by letting Mungo

lie in a small round basket lined with a grey wool mat near the drawing-room fire, and to secure the ornaments from destruction a little tether attached to a heavy stone keeps the lively pet within bounds, and of course he is allowed sundry times of exercise during the day.

The long hair of the mongoose is barred alternately white and brown, which give a speckled effect to the coat, and somewhat reminds one of the colouring of a guinea-fowl. The body is thirteen inches in length, and the tail, which is very thickly clothed with long hair and tapers to a fine point, measures fully fourteen inches. When the animal feels cold it has the power of erecting every hair at right angles with its body and it then greatly resembles a small porcupine.

The entire absence of odour, its cleanly habits and docility when carefully trained, and its charming playfulness tend to make the ichneumon a very attractive pet.

The Egyptian species is much larger than the Indian, measuring about three feet from the head to the tip of the tail. The Greek name ichneumon, which signifies "tracker" or "hunter," was evidently

given to the animal on account of its exploring and inquisitive habits.

The generic term Herpestes denotes a "creeper," and both names are truly descriptive of the characteristics of the animal. (Mongoose is simply the Indian name, mongoos pronounced in English fashion.) It is impossible, for instance, to take Mungo for a walk in the garden ; he will follow up every scent by the way, peer into every little crevice, sniff with keenest interest at a mouse-hole, until at last I get out of patience and put him on my shoulder for the remainder of my ramble.

Somehow he seems to have a great dread of being taken away from the house, for the moment he is released at some distance off he immediately "makes tracks" at full speed to get back to his favourite basket by the fire-side.

The great use of this animal in India and elsewhere is to clear the houses and compounds of snakes, rats, and mice. By nature the little creature is as fierce as a tiger, even my specimen when caught in the jungle at four months old, bit the native who captured him pretty severely when he tried to lay hold of him, and Mungo only became

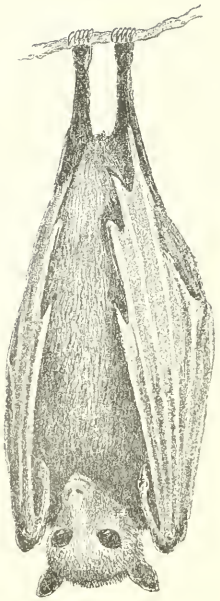
the gentle creature he now is, after months of patient care and kindness.

In a volume of the *Churchman's Family Magazine* for 1864, there is an account of a fight between a mongoose and a cobra which was carefully watched by three officers stationed at Trichinopoly. They took notes of the encounter, which lasted nearly an hour. The cobra was three feet long, and therefore no mean antagonist. The mongoose approached the snake with caution but without fear. The cobra, with head erect and body vibrating, watched his opponent with evident signs of being aware of the deadly nature of his enemy, and at last struck suddenly at the mongoose with tremendous force; it, quick as thought, sprang out of reach, uttering at the same time savage growls of rage. Again the hooded reptile rose on the defensive, and his wily foe, nothing daunted by the distended jaws and glaring eyes of his antagonist, came so near the snake that he was forced, not relishing such close proximity, to draw his head back considerably, this lessened his distance from the ground and enabled the animal to spring at the cobra's head, when he appeared to inflict, as well as to receive a wound.

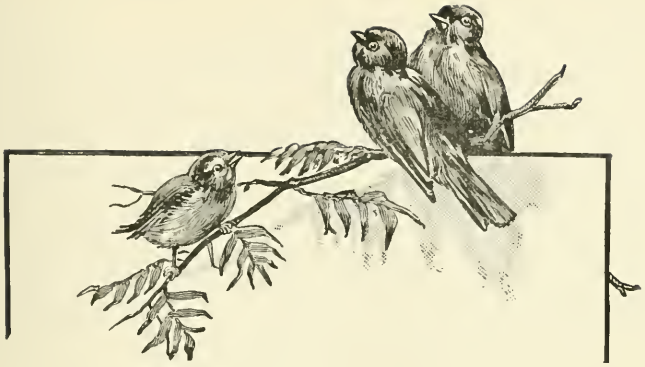
Round after round was fought in this way, the mongoose sometimes springing straight up into the air to escape the deadly onslaught of the snake, and at last he succeeded in fixing his teeth into the head of the cobra, and, having killed it, he set to work to devour his victim.

In a few minutes he had eaten the head and two or three inches of the body, including the venom, so dreaded by all.

Shortly before the fight the snake had struck at a fowl which died within half an hour, showing that the poison of the reptile was in full vigour, and yet the mongoose after being repeatedly bitten, and having, as they afterwards found, the poison fang of the cobra deeply imbedded in his head, continued to be as healthy and lively as ever, clearly showing that the venom of the snake had no effect upon it. This would appear to settle the vexed question about the mongoose having recourse to some vegetable as an antidote to the effect of snake bites. In this case no such remedy was sought by the animal although it was severely wounded, and yet no harm seemed to result.



IMPEY THE BAT



IMPEY THE BAT.

IT is not often that such an interesting exotic creature as the Indian fruit-eating bat can be obtained in England. It was therefore with great pleasure that I heard several were to be purchased at Jamrach's, and I lost no time in sending an order for one to be forwarded to me.

There was some little excitement in opening the case which contained the illustrious stranger, as one could only know by experience whether an animal like a small fox, with leathery wings and

formidable claws, possessed an amiable disposition or not. The box was therefore opened "with care," and quiet peeps taken of the inmate before he was let out.

Two lustrous black eyes set in a soft furry head, which looked timidly out of the aperture made in the box, soon disarmed all fears, for the expression was gentle, and the queer hooked wings were only used to feel about in various directions to obtain a fresh hold in order that the bat might creep out, so he was allowed to find his way into a suitable cage where he could hang comfortably from the wires at the top.

There was something so altogether weird and uncanny about the look of this creature that the name of Impey seemed the most appropriate that could be given. His body was clothed with very thick reddish-brown fur, the nose pointed, the ears large, formed of very thin membrane, and sensitive to the slightest sound. At night they were almost always in motion, flickering backwards and forwards. The eyes are large, and glisten like two stars if a light is brought near the cage in the evening.

The wings when expanded measure more than a yard across, and the membrane of which they are composed is somewhat like black kid.

After a time Impey was allowed to come out of his cage and creep about in the conservatory. He always made his way to some of the pillars, which were wreathed with climbing plants, and by their means he hooked himself up until he reached some wire near the roof, and from there he would hang head downwards, and taking advantage of his perfect freedom, he would thoroughly clean his fur, licking himself all over, examining his wings, and, putting himself in comfortable trim, would then wrap each wing tightly round his body, tuck his head out of sight, and go to sleep until night came on. If we paid Impey a visit about nine o'clock, we were sure to find our weird looking pet amongst the palm branches, his eyes gleaming brightly as he made his way in and out amongst the foliage. He was often in difficulties, because the plants would not sustain his weight, and he was liable to falls, so after an hour or two he was glad to return to his home, where he could suspend himself safely from the upper wires.

His food consisted of apples, grapes, and bananas, and if by chance he had too large a portion to eat conveniently, he would unhook one of his wings from above, and holding the banana against his breast with a witchlike sort of claw, he would then break pieces off until all was finished.

He never swallowed anything solid; after long mastication he would flick away grape skins, apple peel, or anything else that he could not reduce to a soft pulp. Impey was a most gentle pet; he liked to be caressed and stroked, and when called by name he peered out from between his folded wings most intelligently.

I never before realised the difficulty of petting anything that would always live upside down! One longed to see how the soft, pretty face would look the other way up, but we never saw Impey either reversed or flying. Those who have known these bats in India say that they require to drop from a height of at least twenty feet in order to get the air beneath their wings and fully expand them for flight.

My specimen was *Pteropus Media*, and came from Calcutta. I felt, therefore, he would need

great care through the exceptionally cold winter we have had. In the well-warmed conservatory he could hardly have felt a chill, and he had every possible variety of food, but after some months he became hopelessly diseased, a not infrequent result, I find, of these bats being in captivity, and to my great regret I was compelled to have him chloroformed to put an end to what would have been a suffering life.

I have kept our English long-eared bat as a pet for several months, until it became quite tame and seemed perfectly happy. It would take flies from my hand, and required thirty or more daily to keep it in health and vigour, and this shows how much good is done by various species of bats in clearing the air of cockchafers, flies, and gnats.

When a lively bluebottle fly was offered to my bat, it would seize it eagerly, and then folding its wings over the insect, would cower down upon it so that you could not watch the process of devouring it.

On warm summer nights I am accustomed to sleep with windows open, so as to obtain as much fresh air as possible, but this allows the entrance

of inquisitive bats, and thus I am often able with a muslin net to capture the small visitors and keep them for a time to study their habits.

I know many people have a nervous dread of these uncanny-looking little animals, but this dread would, I think, entirely pass away if the perfectly harmless nature of the bat were better known, and certainly its great value as an insect eater should protect it from being destroyed.

It was interesting to watch the daily toilet of my small pet.

He would carefully lick his soft fur, stretch out his wings and clean them from every speck of dust, and when he considered himself in perfect order, he folded his long, delicate ears under his wings, hooked himself up on a wire at the top of the cage, and went to sleep until the dusk of evening, when he would be on the alert to be let out of his cage for a flight about the room.

Flitter-mouse seems a very appropriate name for the bat ; its flight is vague and uncertain, much like that of a butterfly, quite unlike any sort of bird. On summer evenings one of the smaller species always hawks backwards and forwards on

the north side of the house, keeping within a very limited space, finding, I imagine, an abundant supply of insects.

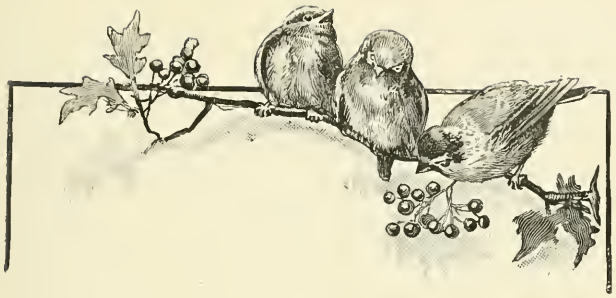
Owing to the lakes being near the house and a moat being the boundary of the garden on one side, the supply of gnats is unlimited, so that swallows, bats, and all insectivorous creatures find this place quite an earthly paradise. I have said that the bat's flight is unlike that of a bird, but one day, quite early in the spring, I saw what I took to be a large thrush flying high up above the trees in the park, and yet, as it flew in circles and at last turned somersaults in the air, I knew it must be a bat; but what species could it be that would fly thus in the bright sunshine of a spring morning? I went in search of a field-glass, and with its aid I could see that my supposed thrush was a noctule, the largest species of bat known in England. Its wings have an expansion of fifteen inches, and this must have been a full-sized specimen to look so large when high up in the air. Yarrell, writing on this bat, says that its peculiar evolutions in the air are caused by the hooks on the wings being required to manage the struggles

of some large insect just captured ; the bat's flight is therefore interrupted, and it drops suddenly about two feet, a manœuvre which reminds one of the odd movements of a tumbler pigeon.

On the following day a pair of noctules were seen flying in the park, so I live in hopes that some day a young one will come into my possession. I feel sure that with gentle kindness, patience, and care it would develop into a most interesting pet, for I learn from those who have kept them that they will become tame enough to fly to one's hand and take an insect from it, and if a humming noise is made with the lips, they will hover close to the face waiting for the coming dainty.

I hope I have said enough to win favour and protection for this most curious and useful creature.

JOEY THE KESTREL.



JOEY THE KESTREL.

(*Falco Tinnunculus.*)

FROM time to time I heard little items about a certain young kestrel which was kept by a poor woman in the village. I tried not to wish for another pet, for I had altogether too many on my hands, but after resisting the temptation for some months, I was at last induced to let "Joey" be sent up to me "on approval." This was a very weak proceeding on my part, for if a new bird comes into the house it is pretty certain to become part of the family; but as I had never

kept a hawk of any kind, and wished to study raptorial birds to some extent, this seemed a good opportunity. The kestrel, therefore, was allowed to come. His owner had been very kind to him, and had brought him up to be quite tame and manageable. He had not had any chance of getting out of his cage for the nine months of his life (he was a bird of last summer), so that his feathers were in poor condition and very dirty. Otherwise he was a bright-eyed, attractive little fellow, always ready with a chirp when spoken to, which is a sign of taming being fairly advanced.

A solemn conclave was held, and the result was a verdict that Joey must be washed! A conclusion easily arrived at, but not so easily carried out! A hooked beak and a pair of active feet armed with remarkably sharp claws would leave their marks upon the hands that attempted to aid Joey's ablutions, but still, "where there's a will there's a way" was exemplified in this case. A large bath was filled with lukewarm water, a willing pair of hands, protected by hedging gloves, volunteered to do the deed, and the bird, held softly and talked to kindly all the while, submitted with a fairly good grace to

his indispensable tubbing, which left the water dirty enough to show the great necessity for it.

No bird can keep in health with its plumage in disorder. When the feathers become matted together, no amount of pluming will put them right, the poor bird becomes discouraged, leaves off using its oil gland (which therefore often becomes diseased), and sitting moping on its perch looks a picture of misery. Then insects begin to increase, and at length the bird dies, quite as much from lack of cleanliness as from any fault in feeding or otherwise. In such a case it is better at once to resort to a thorough cleansing of the bird's skin and feathers by sponging with a little soap in lukewarm water, not, however, immersing the head or letting the soap go near the eyes.

Joey was dried in warm soft cloths and then allowed to go at large in the dining-room. After a time he set to work upon his feathers, and soon began to look soft and fluffy as his curious hooked beak applied nature's oil to lubricate his plumage. He is a prettily marked young bird, the prevailing colours being buff and brown. He does not answer to Yarrell's description of the kestrel

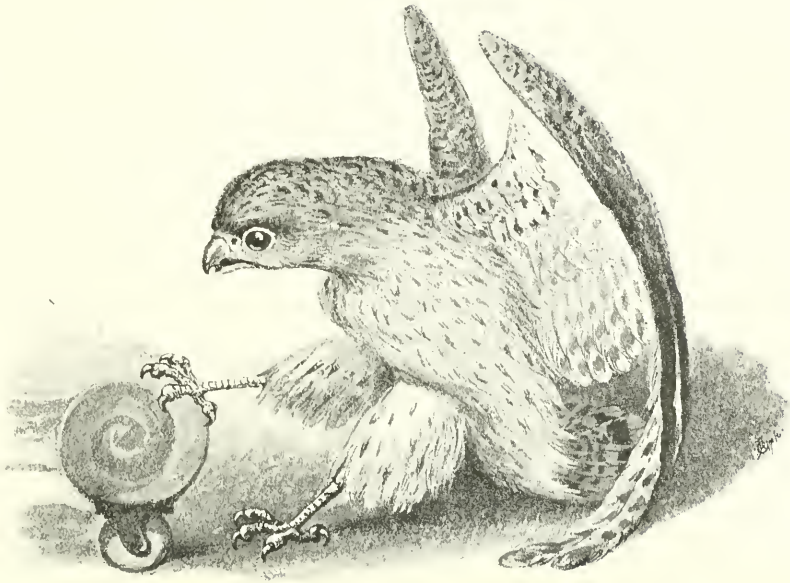
in many particulars, but I believe that is because he is in immature plumage as yet.

As the spring advances he may show the yellow iris and proper feathers of a full-grown bird. Some days passed before our new pet developed all his amusing habits and manners.

He ate and dosed and laid in a renewed stock of nervous energy, and then he began to show what manner of bird he was.

I first gave him a cork to play with ; he sprang at it, and, with chuckles of delight, danced round the room holding it in his claw. As he began to nibble the cork I substituted a peach-stone, which is now one of his regular playthings ; he will fling it a little way off, then spring after it like a kitten, take it to the top of his cage and drop it inside. The next idea is, perhaps, to have a fight with the claw foot of a table, flap his wings, and pretend to have a desperate conflict. I never saw such high spirits in any bird before.

He had a very dull life in a cottage room with no liberty and little change of scene, so it may possibly be the reaction of intense delight at his present happy circumstances ; any way, it is



JOEY FIGHTING THE TABLE-LEG.

charming to watch his amusing and ever-varying antics.

Sometimes he poses on the back of a chair as an eagle on a primeval mountain peak, looking very graceful as he holds his wings upraised and gazes out as if scanning miles of distance for some congenial carcase to feed upon.

It will be delightful when he has moulted and become strong upon the wing, to watch him as a true "windhover" poised in the air, as I often see his congeners in the park. It is quite marvellous how they hold themselves so absolutely still in mid-air while hardly a feather moves, and they, meanwhile, are searching the fields with their sharp eyes seeking for their favourite mice. Joey has most coquettish ways of turning his little head nearly upside-down when he is spoken to, clicking all the while with amiable greetings to us in his own fashion. He has breakfast and supper of raw meat mixed with chopped feathers, which enable him to throw up pellets and keep his digestion in order.

One day we were startled by a sound like gravel being discharged from a cart, and found that Joey

was ejecting a stream of small stones, which fell with a rattling noise upon his sandtray. We could only suppose that instinct had taught him to swallow these stones picked out of his sand to still further aid the digestive process.

At our breakfast time the kestrel is let out of his cage, and then is our opportunity to study his curious ways. He will sometimes fly to the sideboard, and taking his portion of raw meat, he will make a good and sufficient repast and yet have a piece to spare; this gives him a good deal of thought and trouble, as he evidently feels in duty bound to hide it somewhere till he shall again feel hungry. At first he stowed it away under a piece of carpet, and when let out again would go to the place and look for it. But latterly he has adopted another plan. There is a crevice behind some Bibles and hymn-books on the sideboard which he evidently thinks a highly desirable larder, and there he rams in the piece of meat, and if we go near and pretend to take it, he cowers down and stretches out his wings to hide his dainty from our sight. It is amusing to see Joey going frequently to this crevice to see if his provision is all right; it must,

doubtless, be a natural instinct retained even in captivity thus to secrete any spare food till it is required. If his breakfast is delayed he will keep flying from the sideboard to my shoulder again and again until his wants are supplied.

A probable derivation of the word kestrel seems to be from "coistrel," an old name for a serving-man, this being the kind of hawk permitted for the use of peasants in the days of falconry.

The specific name of the kestrel points to its shrill ringing note. When Joey sees Mungo we hear his voice raised to its highest pitch as he gazes at what must seem to him an alarming kind of stoat; but he can also make a wailing sound exactly like a baby crying. This can always be evoked by holding his piece of raw meat and pretending to try and take it away. We do not often tease him thus, though one is tempted to do so for the sake of hearing his amusing protest.

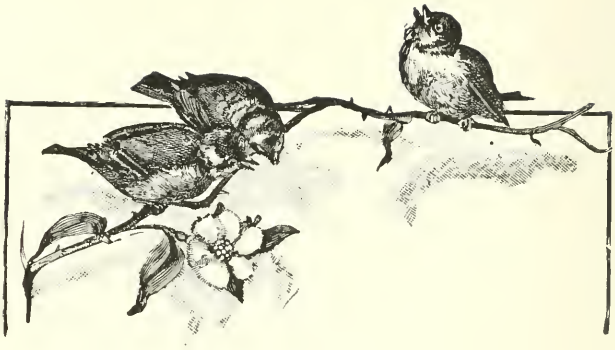
It is becoming a rare thing to hear the cry of a kestrel, or indeed any kind of hawk in our woods, so ruthlessly are they destroyed by gamekeepers on the plea of their being injurious to the interests of sport. It is a grievous pity to lose this beautiful

race of birds from our fauna, and if even the larger species of hawks do sometimes kill a young partridge or pheasant, which may be urged as a plea for their being reduced in numbers, surely the useful little kestrel might be spared for the value of its services in ridding the farmer of mice, reptiles, and cockchafers. These form its staple diet, and it has been proved over and over again that farmers are very unwise in killing these birds, thus disturbing the balance of nature and bringing upon themselves plagues of mice as a result. Mr. J. E. Harting in "Science Gossip" shows how this bird is often mistaken for the sparrow-hawk, and remonstrating with a keeper who had shot a kestrel, the man remarked, "There ain't a greater varmint out; I'll be bound he's had some of my young birds." The poor victim was examined, and it was found he had dined off a short-tailed field mouse, with grasshoppers for second course, and the keeper was obliged to admit he could not grudge him that fare.

Even the poor night-jar does not escape the murderous gun, for when Mr. Harting proved to a keeper, by pointing to its bill and feet, that it could

not be what he called "a specie of 'awk," he found an excuse for killing it because it was "a narsty flopping thing!"

It is needless to say that there is no thought of Joey being sent away again. He is too delightful a pet to be parted with, so some coin of the realm has made him my little domestic eagle (as I call him) for life. I anticipate great pleasure as the spring comes on in seeing him in his new garb, and possibly he may become tame enough to be allowed his liberty out of doors, which I always delight to give when it is practicable, for the voluntary companionship of a wild bird is the triumph of real taming, and shows that the little freeborn heart has truly been "won by kindness."



SYLVIA THE WOOD-MOUSE

MY little nephew ran to me one sunny morning, with a wonderful story of a mouse he had found in a cage under the veranda, and to his surprise the mouse was so tame it would let him stroke it. I knew there was an old cage there, but I feared the mouse must be hurt if it allowed itself to be handled so freely. I went to see, and there *was* a bright-eyed, pretty little wood-mouse sitting in the food trough enjoying some old bird seed that had been left there. Referring to Yarrell I found it was

a specimen of the long-tailed field-mouse, which will often come into houses when the weather is severe, and is "a gentle, timid little creature, easily tamed and rendered perfectly familiar."

This was a very tempting description. The little boy pleaded that since it had come of its own accord it must wish to be a pet, and since it allowed me to caress it, I had no difficulty in transferring it to a large inverted propagating glass, where, with a box for a sleeping place, plenty of cotton-wool for bedding, and an ample supply of food, Sylvia took up her residence and seemed quite content.

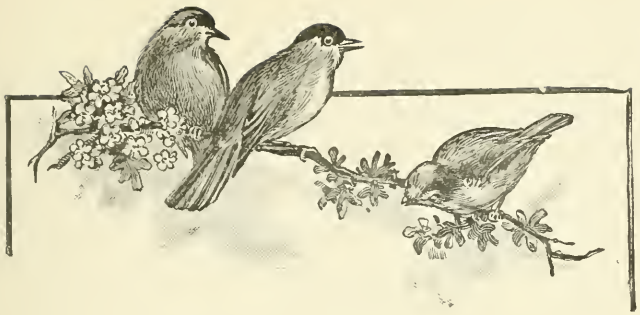
For a month I studied her habits and manners, and became much attached to the graceful, confiding little pet.

Then I left home for a few weeks, and heard with real regret that Sylvia had escaped and could nowhere be found.

I felt sure I should see her again some day, but several months passed by, and it was not till the following August that she appeared in the conservatory. Climbing up a slender palm branch which enabled her to look through the glass door into the drawing-room where we were sitting at

afternoon tea, Sylvia evidently wished to recall herself to our notice. A piece of brown bread and butter was placed on the floor, and in a few minutes she came to it, and after sundry nibbles took it away to be enjoyed in some quiet nook. I kept her old cage in the conservatory so that she might always find provender at hand, but still all through the summer and autumn she came at our tea-time for some extra dainty. One evening, to my surprise, I saw three small dusky forms moving about, and found Sylvia had invited, or at any rate permitted, two little shrews to join her evening meal. I suppose while they were scouting around they smelt something good, and hunger made them bold enough to come into view. It shows how these tiny folk exist almost everywhere, doing their useful work in clearing away odds and ends that would otherwise tend to pollute the air.

Sylvia's supplies are always ready for her in the conservatory, and need renewing every day, so I know she exists, though during the darkness of winter evenings I cannot see her, as I hope to do when summer comes again.



PIXIE AND PASTOR.

THERE is something so bright and clever about the starling tribe, and my pet birds of this kind have so endeared themselves to me, that once again I have been led to bring up a pair by hand. Taken out of the nest before they were fledged (the rest of the family being left for the parent birds to bring up), they grew, under my care, to be strong and active, very distinct in character, but both extremely tame. To my great regret the male bird had a fit and died, so I have only Pixie to

educate. She is devoted to me, and being such an active teasing sprite I thought the fairy name would be most appropriate to her. She is not as yet a good linguist. It is singular how individual specimens differ in that respect, for, after eight months' teaching, Pixie can only say a few words, while Richard the Second at the same age could repeat long sentences. Perhaps Pixie is only backward and may develop into a good talker later on.

A young friend of mine derived much amusement from watching a pair of starlings which she had brought up from the nest. I will transcribe a short description of their building operations. "They grew very tame and would follow any of the family about the garden, perching on the shoulder of one or another, and even when out of sight they would come when called. They were kept in a cage at night and allowed their liberty by day. They soon learned to feed themselves on grubs and worms in the field, and were wonderfully quick at catching flies and moths. In the summer these birds delighted to come into the house and seize the flies on the window-pane, and if they could get the chance they would steal a pat

of butter from the breakfast table. They seemed to have no fear; the dogs became accustomed to them. We often wondered if they were a pair, and in due time they set the question at rest by beginning to build. It was hoped they would kindly take to their cage, but after many beginnings in different places a nest was really commenced and finished on a shelf in a bedroom cupboard. The hen laid four eggs and began to sit, the cock taking his turn on the nest, and in a fortnight's time two birds were hatched, and the next day a third appeared. The window was left open all day, and in the early morning they were let out, and very busily the parent birds worked all day bringing grubs, spiders, moths, and caterpillars. The nest was a very curious structure, the foundation being of straw, but after the eggs were laid, feathers were added as a lining to keep them warm. Some peacock's feathers standing in a jar in the room attracted the starlings' attention, and with these they artistically ornamented their nest."

I had also hoped to watch this process of incubation, and the premature death of the male

starling set me thinking in what other way I could provide a mate for Pixie. Seeing an advertisement of a male rose pastor, and knowing it to be a closely allied species to the starling, I sent to Hampshire for this specimen, which duly arrived, and proved to be a fine healthy bird, but not as yet in mature plumage. It has no crest or pink colour except in its beak, which has a tinge of red ; the rest of the plumage is soft grey and black. The bird is remarkable for mental power ; he evidently thinks, and is the most quietly attentive bird I have ever possessed. He never flutters or gets in a fuss, but stands considering, and then goes forward and acts with decision. When out of his cage he affords me a constant source of interest, so plainly is the working of his mind to be seen by his actions. The rose pastor occasionally visits this country, but is a native of India. My specimen came from Calcutta, and being used to a warmer climate I am rather perplexed how to prevent his suffering from our cold winter and spring. So far the two birds do not seem to be attracted to each other, but when the cold ungenial spring has passed I live in hope that the nest-building thoughts may

arise, and the pair may agree to begin housekeeping together. I have been told of one instance in which a hen song-thrush paired with a blackbird; no eggs were laid, but several nests were made in an outdoor aviary in which the birds lived. The nests were beautifully constructed by the hen bird, and consisted of small twigs and the stalks of millet, with a mud lining which she obtained from the turfs daily supplied to other birds in the aviary. The thrush was so tame as to allow herself to be fed whilst sitting on her nest. This instance encourages me to hope that the Pastor and Pixie may pair in due time and afford me the amusement of watching their domestic arrangements, which in the case of birds with so much character are sure to be entertaining.

Since this page went to press I have had a severe disappointment.

So confident was I in Pixie's absolute tameness that I ventured, one fine May morning, to let her out in the garden.

As I sat under a tree she was quiet and happy engaged in investigating the turf, hopping in and

out of her cage, and showing no desire to fly away.

I felt extremely glad to be able to give Pixie her perfect liberty. We had not been sitting thus for more than a quarter of an hour, when the strong smell of smoke, and the roaring crackling sound of flames made me aware that the common which surrounds this place, was on fire.

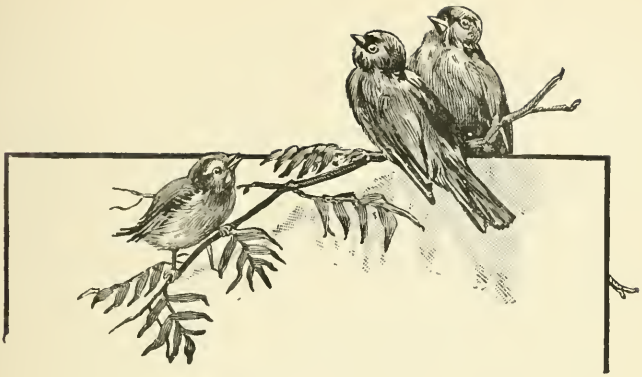
Pixie, in great terror, flew into the branches of the tree, caught sight of the fire and, alas! away she went out into the park quite beyond my ken. I had to summon all the men on the place to help to put out the flames, when they threatened to come dangerously near my lodge and belt of trees.

More than that we could not do; it became a raging fire that no power could limit in any way, consuming more than fifty acres of our beautiful golden-flowered gorse and many young trees. I only once caught a glimpse of Pixie circling high in the air too far away to hear my call, and though the cage was left out, and every loving device tried to bring her back, I have never seen her since, and can only suppose that she flew so far away as to lose all clue to her old home, else I feel sure her

affection would have brought her back to me. Pastor, I am happy to say, has borne this unexpected breaking off of his engagement with genuine philosophy, but I am less easily consoled than he is.

INMATES OF THE GROVE.

MY HIGHLAND KYLOES.



HIGHLAND KYLOES.

ON a sunny morning in the early part of September, we were out on a Scotch mountain-side, breathing the delicious fragrance of the fresh, keen air, scented by wild flowers, bog myrtle, and the rich luscious fragrance of the pine woods.

The heather, like a purple sea, stretched away far as the eye could reach, melting into grey mist in the distance. The mosses underfoot glistened

like silver, and the cobwebs, swaying as the bracken bent to the wind, showed each tiny thread gemmed with dewdrops.

A mountain stream was making music between masses of grey granite, leaping down in miniature waterfalls and revealing its course by the rich growth of ferns and reeds, varied here and there by snowy masses of cotton grass, and ending at last in boggy ground where asphodel and many a delicate plant might be found growing in undisturbed luxuriance.

Towering granite rocks reared themselves here and there with weather-beaten fir trees growing out of crevices which seemed too narrow to afford either room or nourishment for trees of their age and size.

Lichen growth tinged these rocks with many a delicate tint and stain, only made more vivid and lovely by winter storms and tempests. These crags were mirrored in the calm waters of the Highland loch at their base—colour and form being faithfully repeated.

The rich crimson of a curved bramble spray dipping into the water, made a leafy arch of exqui-

site beauty ; in fact, the whole scene vividly recalled the old poet's lines :

> "As when a smooth expanse receives inpress'd
> Calm nature's image on its wat'ry breast,
> Down bend the banks, the trees depending grow,
> And skies beneath with answering colours glow."

The picturesque cattle one sees grazing on the hill-sides are quite in keeping with the wild character of Scottish mountain scenery. It is not surprising that Mdlle. Rosa Bonheur, Mr. Goodall, and other artists have been attracted by Highland Kyloes, and made them the subject of many a charming picture.

They are to be seen not unfrequently in English parks, and are, in their way, as beautiful as the herds of deer amongst which they graze. Although somewhat wild of aspect, they bear themselves with a natural grace and dignity as if they were proud of an ancient lineage, the true aristocrats of the bovine race. Their prevailing colours are brown, red, black, and a whitish dun colour not unlike that of the wild cattle of Chillingham. An essential qualification of a well-bred Kyloe is its long, straight hair which, during winter and spring,

attains a length of from five to seven inches. This shaggy covering, and their hardy constitutions, fit them for their life on the mountain-side; they bear the piercing cold and drenching rains of a Scotch winter without injury, and they can feed contentedly and thrive on coarse herbage and scanty fare, consuming the grass which other animals have left. The origin of their name seems rather obscure. Some have traced it to their crossing the many kyloes or ferries which abound in the west of Scotland, others suppose it to be a Gaelic word which signifies highland.

The plate shows the curved expansive horns, the short legs, the broad forehead and straigh' back which are considered the points of special beauty in a well bred kyloe.

Although cattle of this kind are not specially adapted for dairy purposes they are noted for yielding excellent fine-grained beef; a prime Highlander always commanding the highest price in the market.

The calves are brought up under cover during their first year, but afterwards they are allowed to face all weathers, and thus grow up with shaggy

coats and vigorous constitutions so as to fit them for the free, wild life which awaits them on the hills. The different islands of the Hebrides contain, says Mr. Youatt, "about one hundred and fifty thousand of these cattle, of which it is calculated that one-fifth are annually sent to the mainland, principally through Jura or across the ferry to the Isle of Skye. Three thousand five hundred are yearly exported from the Island of Islay alone."

The two kyloes, whose portraits are here given, adorned our fields for three years, and I was thus enabled to learn something about their ways and special characteristics.

Curiosity seemed to be strongly developed in them. Their attention would be attracted by the smallest object in the fields—a rail misplaced—a cart passing by—a piece of paper blowing about, all would be watched and examined. The trait is common to all cattle, but more inherent in the Highlander than in other species. Impetuous also they were to a great degree. When first brought from the north, kyloes require most careful treatment. To attempt to drive them where they are disinclined to go would simply result in a stam-

pede, and when this takes place it has a bad effect upon their manners for a long time afterwards. They cannot be treated too gently, and if only farmers knew the harm done to their herds by rough, brutal treatment, their own self-interest would lead them to show more patience in driving cattle from field to field, or to and from the market or railway station. It often grieves me to see boys allowed to drive valuable cows, hurrying and scaring the gentle creatures, shouting and flinging stones at them, and I marvel that farmers have not the wisdom to train their cow-herds in better ways.

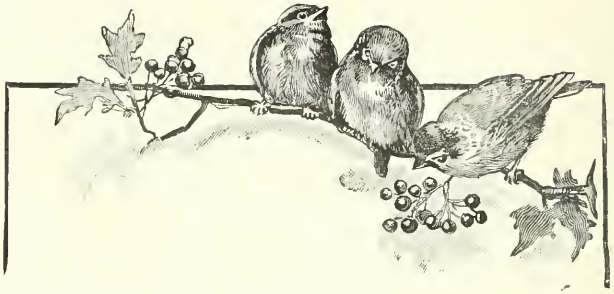
I am told by those who have to fatten bullocks for the agricultural shows that keeping the animals happy, and treating them with quiet gentleness, tends greatly to promote their increase in size and weight, so that again, kindness would appear to be the best policy even from a selfish point of view.

Our kyloes grew to be very gentle and quiet, and though one could hardly pet such bulky creatures, yet I used often to caress their thoughtful looking faces, and show to admiring friends their wonderfully long silky hair. As they gazed at you with their beautiful liquid brown eyes they seemed

as if they must be pondering over some difficult question. I often wished they could speak and tell us their thoughts, and that I could convey to them some of the kindly feeling we entertained towards them.

I have had no opportunity of studying Kyloe cows, but I am told that they are so fond of music that the dairymaids invariably sing all the while they are milking them, else they will not readily keep quiet and yield their valuable produce. I will close this paper with a touching and true story of a Kyloe mother's love.

A young calf while being taken away from the pasture where it had been grazing with its mother, was followed by her to the confines of the field. The drover thought that there would be an end of it, but that turned out not to be the case. About four o'clock next morning the cow was found standing patiently at the door of the shed in which her calf was confined. The affectionate bovine mother had travelled three miles seeking her offspring, and could only be removed by sheer force from the place where it had been slaughtered.



SHAGGY BRAY.

THE above name seemed the most appropriate that could be found for a little ass's colt which was bestowed on me in my girlhood by a kind uncle, who well knew my intense delight in animals. No words could express my pleasure when this quaint shaggy little creature trotted up to the door, and I was told it was to be my "very own."

I think my small steed was then about five months old, at any rate he could feed himself and had a remarkably good appetite for bran and oats,

SHAGGY BRAY.

with which he was well supplied. I suppose it seldom falls to the lot of a donkey to be brought up as mine was, lapped in luxury from its early youth, abundantly fed, with never a harsh word to vex it, and treated with uniform kindness. Shaggy was certainly born under a fortunate star. He trotted everywhere after me like a little Fakenham Ghost, and developed all kinds of tricky ways of his own. He had a most wonderful coat of shaggy hair from four to five inches long, black and tan ears, and the usual mark of the cross, formed by the black line down the shoulders and along the spine, was well defined.

Of course Shaggy could not bear even my light weight until he was several years old, but I often turned over in my mind the possibility of his drawing a little cart when he had grown into a sturdy young animal. Alas! however, coax as I might, my elders and betters did not seem inclined to give me any sort of vehicle for him, so I had to devise a plan of my own. It had to be a very humble sort of chariot, an ordinary wooden box on a pair of little wheels which the gardener obtained for me. He fixed the two together; I had already

a bridle, and having attached to it a pair of long reins of flannel list, the proud moment came when, having harnessed Shaggy by a pair of leather traces, I stepped into my carriage and signified to the little steed that he might go forward. He received the command, as I gave it, in all innocence of what was to follow, but he no sooner felt the weight behind him and heard the rumbling of the wheels, than away he went full speed along the gravel walk, growing more terrified every moment by the noise of the hateful thing at his heels. My feeble reins snapped at once, so I was powerless to guide, and oh! how I was shaken in the springless box! I could not get out, so I had to resign myself to my fate which proved to be an ignominious upset of the whole concern as Shaggy dashed into the summer-house which stood at the end of the path. There were two tenter hooks in the front part of the box, to which the traces were fastened, and one of these caught in my ankle and tore a considerable gash, otherwise no great damage followed this escapade. The poor little animal and I both stood trembling and subdued, and my first care was to console my pet with kind words and kisses for all

the terror he had gone through, and then to bind up my wound so that no one need know what had happened.

I rather expect I thoroughly and privately darned that torn sock so that the rent might not be noticed, else I should probably have earned a severe rebuke for such carelessness.

As Shaggy pastured in the fields by day, and was sheltered in the stable at night, it was always my pleasant duty to bring him home each evening, and, however dark it might be, I went through the fields alone; if I could not see him, he answered my call by trotting up and putting his soft nose into my hand. The bridle was soon put on, and, jumping on the back of my little animal, I had always a delightful canter home, only needing to take care in passing through gateways that my limbs were not bruised against the posts. I learnt to have a capital seat in this way; for, without any saddle, you must keep the centre of gravity very carefully if you would avoid constant falls; but by sitting as if I were on a side-saddle, and holding by a lock of Shaggy's long hair, I could enjoy many a gallop round the park in the early morn-

ing, when the grass would have been too wet and dewy to be pleasant for walking.

As I look back to those long-ago years, and think of the many falls I had, I wonder I did not break my neck. It was bad enough when Shaggy chose to rush up a bank to find myself slipping off behind, but still worse when he suddenly swerved to the left whilst galloping at full speed, and I was pitched off to the right and fell on my head—fortunately on soft grass, else I should not now be writing these reminiscences of my erratic little steed. At one time the donkey had access to a poultry-yard ; but this soon had to be stopped, for nothing delighted him more than to try and trample the chickens to death. He would seize his opportunity when the fowls were being fed, and many of them were together, to plunge in amongst them and execute a sort of Highland-fling, which no doubt afforded him pleasure, but which wrought destruction to the poultry. The killed and wounded were so numerous that Shaggy was for evermore banished from the fowl-yard. This curious propensity has no doubt given rise to the proverb " Like a donkey

amongst the chickens." Our fields were sometimes crossed by stag-hounds pursuing their quarry. This always set my little animal galloping wildly about, his head high in the air, first held to one side and then to the other; and once, when under great excitement, he cleared a hedge in fine style, to the immense amusement of the hunters; he added to the comical effect of his performance by braying vigorously all the time.

Shaggy was in our possession for twenty years; but at last it was not convenient to keep him any longer, so he was given to a friend, who made him both happy and useful. He carried a pair of panniers to the shooting-ground, and, keeping of his own accord near the beaters, he followed the party through the fields, receiving the game as it was shot, and seeming to take much interest in the expedition. The portrait at p. 79 is an exact likeness, reduced from a large chalk drawing I made long years ago.

Asses live to a great age. I remember as a child riding on one at Brighton which was said to be forty years old; and my little donkey at twenty

showed no sign of age or infirmity. If brought up kindly and well fed, the ass is a sprightly, intelligent creature, very different from the poor dispirited specimens one often sees in the streets; frequently cruelly beaten and half-starved, the wonder is that they can live or work at all under such conditions.

One is glad to know how much has been done of late years to inculcate kinder treatment of this useful little animal; and not unfrequently we may see well-cared-for donkeys trotting along with a cheerful, happy look about them, their sleek coats and well-cleaned harness showing that they belong to a good master.

It is a pretty sight in our own neighbourhood to meet a pair of tandem donkeys driven by a young lady, who knows well how to rear and educate her clever little steeds. She has devised a very original and humane method of quickening their pace when required. The thickness of an ass's hide makes an ordinary whip of little avail, so she holds one simply for appearance sake, the real driving implement being nothing more terrible than a mustard-tin full of stones, which when

rattled has a wonderfully rousing effect, and sends the little pair on at a famous pace. The following anecdote goes to show what sagacity this animal possesses when treated with consistent kindness:—

"A Spanish peasant, living in the suburbs of Madrid, had long been in the habit of repairing daily to the city, accompanied by a donkey laden with milk, for distribution among certain customers. One day, however, the master was taken ill, whereupon his wife suggested that the ass should be sent on his customary journey alone. The panniers were accordingly filled with cans of milk as usual, and a bit of paper was attached to the donkey's head-stall, requesting the customers to help themselves to their ordinary allowance of milk, and to put back the coin into the pannier. Off started the donkey, and he returned in due course with the cans empty and with everything in order. The master found upon inquiry that the trusty messenger had called at the right doors without missing one, and also that in some instances he had pulled the bell with his teeth when kept waiting.

"From that day forward the donkey has gone his

rounds alone, and it may be presumed that his arrival at a certain definite hour is counted upon by each customer, just as in England, forty or fifty years ago, the inhabitants of country villages regulated their clocks and watches by the mail coaches, which ran past their doors with unfailing punctuality."

The brain of the ass is said to be considerably larger in proportion than that of the horse, and, as I have before said, when the animal is well fed and kindly reared, it shows no lack of intelligence ; it will open gate-fastenings and let itself out, and in one instance known to me, the horses in the same field with a donkey were not above accepting its services when they wished to stray away, and would meekly wait till the clever little creature had unhasped the gate, when they would all canter off together for an unlawful frolic.

The maternal affection of the ass seems to have been observed long ago, for Pliny says, "That when the young is separated from the mother, she will pass through flames to rejoin it." I was told by one who had the care of a donkey that had always hitherto been gentle and well-conducted,

that one day on entering the stable he was greeted with violent kicks from the little animal, and, surprised at this change of conduct, he looked around and found a tiny foal had arrived in the night, and the faithful mother thought she was bound to defend her new treasure from any intrusion, and would not allow any one to approach it.

It is rather curious to observe how different animals attain the cleansing of their skin by other means besides bathing in water. One may often see an old cart-horse in a field, with cakes of dry earth upon his sides, because he loves a good roll over and over in a muddy place.

The ass, on the contrary, shows his southern origin by preferring the dust of dry roads or sandy places in which to enjoy his dry bath.[1] He will

[1] The following extract from an American paper gives some interesting items on this subject :—

"ANIMAL TOILETS.

"Birds are very particular about the quality of their 'toilet dust,' and equally nice as to the water in which they prefer to wash. Some use water only, some water or dust, others dust and no water. Partridges are a good example of the dusting birds, and are most careful in the selection of their dust baths. Dry loam suits them best ; but perhaps

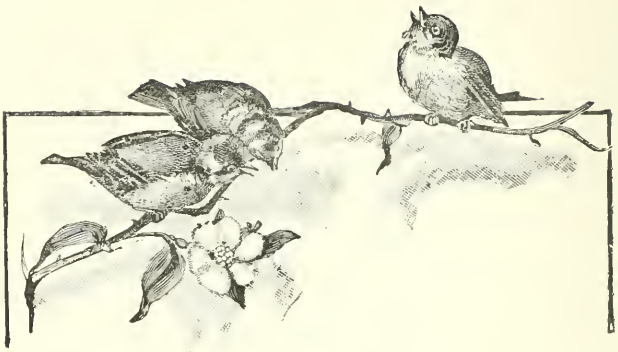
carefully pick his way along the dry side of a lane to avoid a roadside puddle, so much does he dislike wetting his feet. Even in drinking he is most fastidious; only the cleanest water will suit his taste, and, unlike the horse, which plunges its nose

their favourite place is a meadow where a few tufts have been removed. There they scratch out the loam, and shuffle backward, under the grass roots, until their feathers are full of the cool earth. In wet weather they find, if possible, a heap of burnt ashes on the site of a weed fire, and dust there. Sparrows, on the contrary, always choose road dust, the driest and finest possible. Meadow larks also are fond of the road, and dust there in the early morning. But they, too, have their fancy, and choose the dry, gritty part, where the horses' hoofs tread. Wild ducks, though feeding by the salt water, prefer to bathe in fresh water pools, and will fly long distances inland to running brooks and ponds, where they preen and wash themselves in the most vigorous and thorough way. But though passing so much time on the water, ducks seem to prefer a shower-bath to any other, and in a heavy rain they may be seen opening their feathers and allowing the rain to soak in, after which they dress the whole surface with oil from the reservoir with which they are provided. Swallows and martins are likewise nice in their choice of bath water; nothing but newly-fallen rain-water thoroughly pleases them, and if tempted to bathe it is by some shallow pool in the road which an hour's sun will evaporate. Cats, large and small, make the most careful toilets of any class of animals, with the exception of the opossums. Lions and tigers wash themselves in exactly

well into the pail, the donkey sips his draught from the surface.

Shaggy's long hair used to fall off in the summer, when he would become quite smooth and sleek, until the cold in autumn made his coat quite long again.

the same manner as the cat, wetting the dark, indiarubber-like ball of the forefoot and the inner toe, and passing it over the face and behind the ears. The foot is at the same time a face-sponge and a brush, and the rough tongue combs the rest of the body. Sporting dogs, which are used in mud, snow, and wet, are strangely clever and quick in cleaning and drying their coats, and it is a sure sign that a dog has been over-tired if he shows any trace of mud or dirt next morning. Most of their toilet is done with the tongue, but they are very clever at using a bush or the side of a hay-stack as a rough towel. One small spaniel, which was allowed to live in the house, was well aware that if he returned dirty he would not be admitted indoors. About an hour before the close of the day's shooting he used to strike work and begin to clean himself, and, if urged to do more, would slip off home and present himself neat and clean in the dining-room. One day the dog had been left at home, and his master returned and seated himself, wet, and with half-frozen drops of ice sticking to his gaiters, by the fire. Pan ran up and carefully licked off the frozen ice and snow, stopping every now and then to give an anxious look, which said as plainly as possible, 'Dear me! If I don't get him clean quickly, he will be sent off to lie in the stable.'"



FOXES.

IT is by no means an easy matter to see anything of foxes in their happy hours at home, undisturbed by the fear of hunters and hounds. Such an opportunity was, however, at length attained by my bailiff after much patient watching.

From the shelter of a thick bush he was able to get a good view of the fox-earths, and after waiting in absolute stillness for about twenty minutes he caught sight of a pair of sharp bright eyes under a furze bush, about five yards from where he was

standing. For five minutes or more these "eyes" never shifted but kept up their steady gaze. At last the owner of the eyes moved forward to obtain a better view of the suspicious object, and then he was seen to be a full-grown animal with a splendid coat and brush. An open space stretched away for a little distance and on one side was a ditch full of fox-earths. Up one of these holes the fox rushed, and there seemed but little chance of seeing him again; patience was, however, rewarded, for very soon there was a slight rustling and home came another fox (perhaps mate to the one first seen) and she rushed into one of the holes, the same one into which the first fox went.

A few minutes passed, and out came Reynard again, evidently determined to make sure whether there was any danger lurking near. He walked cautiously about for some time and then, becoming reassured, he possibly gave some signal to his family, for out they all came, six or seven of them, the old fox and his vixen and five big cubs, pure hobbledehoys, awkward and clumsy as compared with their sleek, handsome parents. For some little time the watcher saw with much interest the

happy gambols of the whole party. They rolled over and over, played with each others tails, and were as full of fun as a set of big kittens. There is, however, a limit to human endurance on a summer's evening when the gnats are numerous; and at last, an extra vicious sting led to a slight movement on the part of the observer, when instantly every fox had vanished into the "earths." It is quite possible that one fox had kept his eye upon the intruder all the time, and that he gave the danger signal when it was needed.

The female fox, or vixen, makes a warm nest of dry leaves, moss, and hay, and shows the greatest affection for her young.

She has even been known to carry a young cub in her mouth during a severe chase of nearly an hour, and only drop it from the necessity of taking breath. The fox is a nocturnal animal, as the linear pupil of its eye indicates; but in this place we often see it in the daytime, taking a leisurely stroll across the fields; and in winter its footprints in the snow can be traced close to the house where hunger leads poor Reynard to search for any stray provisions lying about. Even such a shy animal

as he is, learns to know where he is unmolested, and trots fearlessly past us when we meet him in our walks.

Fox-hunting on our common is no doubt a great amusement to all who participate in it, whether mounted or unmounted.

The place is, however, particularly unsuitable for the purpose, as the O. B. H. often find to their vexation.

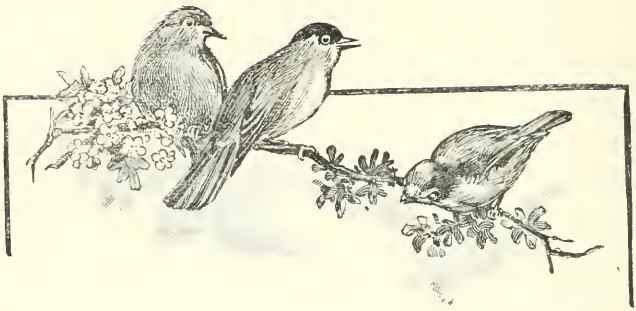
The "earths" are usually blocked up the night before the hunt, so that when the fox arrives at home after a night's adventures in the neighbouring poultry yards, he finds himself shut out, and he has to creep under some furze or bracken for shelter; this gives the first advantage to the hounds, who after a time come upon the scent, and from that time poor Reynard makes a series of short runs in all directions to elude his enemies and yet, if possible, he tries to avoid leaving the shelter of the common. One needs to see the business-like gait of the hunted fox to appreciate the coolness and judgment he uses; he never wanders aimlessly to and fro, he forms his own plans and trots deliberately about from one point to another guided by

the sounds he hears. The Grove being surrounded on three sides by the common, the foxes know they are sheltered within its gates, so they naturally cross and re-cross through the garden and fields to try and baffle pursuit, in fact, they describe a circle (long or short as the time or the vicinity of the hounds permits), until at last one is compelled to break cover and take to the open fields. Even then after a time he will try to swerve round to get back to his favourite haunt. The hunters are now courteous enough to abstain from riding through my gardens, which used to be a serious annoyance to me in former years; but I still hold very strongly the feeling that hunting, within eleven miles of London and in the midst of gentlemen's seats with highly-kept pleasure grounds, is a great mistake and should not be permitted.

The hunters little know the extreme annoyance it causes, perhaps not so much from the actual damage to fences (though that is a very serious item, and a lady like myself cannot well appeal against it), but one's herds of pet Jersey cows, the young colts, and the sheep are all kept in a state of fright and excitement hour after hour until, in the case

of delicate cows, the results are sometimes sadly disastrous.

The hunt may consist mainly of gentlemen, but others with no claim to that title mingle with them, and the followers on foot are simply "roughs," whose shouts and cries are a great offence to one who loves, as I do, the quiet peacefulness of the country. I am only too thankful when, by posting my garden-men at every point, I can succeed in keeping these hunt-followers outside my private grounds; the fields they *will* invade, and alas! for my young wheat, when eighty or more horsemen have ridden across it two or three times. My readers will not wonder that I am devoutly thankful when the hunting season is over and the poor little foxes are once more free from their tormentors.



SQUIRRELS.

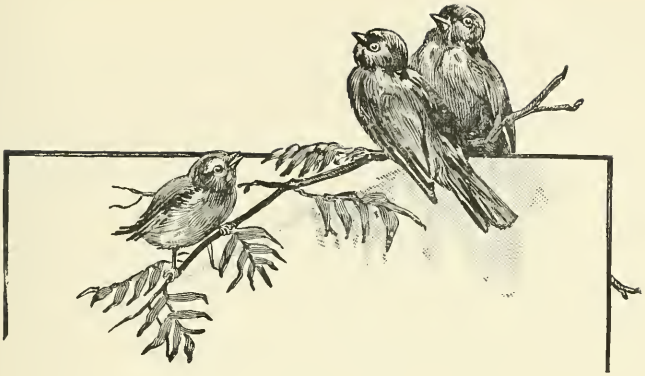
OUR Squirrels have become tamer and more interesting year by year. One-eared little Frolic has ceased to come to the window, we think he may have perished in some desperate fight, a victim to his combative disposition.

Four very tame Squirrels are generally to be seen on the lawn or in the fir-trees near the house. One we name Tiny, can be distinguished from the rest by his confiding little ways. He looks upon the dining-room as his province and feeding-

grounds, comes in at all our meal-times, leaps on a chair, and from it to the table in the window, where he sits cracking and eating his nuts, gazing at us with perfect *sang froid*, but all the while keeping an eye to any possible intruders from outside. If a hungry little furry face is seen peering over the window-sill, Tiny is off towards it like a shot, and we see a furious chase going on across the lawn, one graceful little creature eluding the angry claws of the other by a spiral scamper up the tulip-tree. If his nuts fall short, Tiny hops across the room to the cupboard where the bag is kept, and springing up to the shelf calmly helps himself. Our friends are always amused to see this performance, for it does seem remarkably cool that Tiny should not only supply his own immediate wants, but keep on sowing his provender by putting nuts into little holes all over the lawn until the bag is empty.

Tiny costs me a small fortune in nuts, but he is such a charming little thief I have not the heart to limit his supplies. On cold mornings when the windows cannot be kept open, nuts are always thrown out for our little friends, but before long

these are disposed of, and then Tiny may be seen gazing at us through each window in succession, wondering, no doubt, at our hardness of heart in keeping him outside. So far as I can discover, these little animals of ours, being so well fed, do not hibernate during the winter, for through the frost and snow they come for their daily meals. Like the bees which, when taken to Australia, found the climate so mild and agreeable that they needed no winter store of honey, and therefore left off being "busy bees," we have interfered with the winter instincts of the squirrels, and fed them so well that they have become improvident, and look to us alone for their supplies. I do not know how this can be reconciled with the theory that a certain degree of cold causes the hibernation of the squirrel.



HUNGRY BIRDS.

I THINK one sees the character and temper of birds more clearly shown in winter than at any other time.

It is most amusing to watch a party of starlings during the hard frost, how they do fuss over a heap of oatmeal! picking it up in eager haste, chattering all the time, taking hasty flights, scared with the slightest sound, but returning directly to continue their repast, pushing each other out of the way, having fierce little tiffs and

scrimmages which are after all only on the surface and over in a minute. Very different is the real fury of a robin feud, which means serious fighting kept on from day to day, until sometimes I have seen the little combatants rolling over each other on the lawn in such blind rage that one could pick them up and try to be peacemaker, but I fear with little success, for the conflict is generally renewed and goes on to the bitter end.

The blackbirds hold their own with great dignity, eating ravenously, it is true, but with little noise and minding their own business, only an occasional plaintive click revealing their presence amongst the claimants for out-door relief. I delight to watch the pretty ways of chaffinches, they never seem too hungry to be polite, they come tripping daintily up to the food and wait till there is an opening in the crowd around it. One could fancy it possible to hear them say, "I beg your pardon for intruding, but may I have a little piece of bread?"

Another well-mannered bird is the water wagtail, always refined and pretty in its ways. It comes near with a little run, then stops to look and think,

and if rudely repulsed it goes away meekly, willing to suffer hunger rather than push its claims for the wintry pittance.

Amongst all the rest the burly sparrow makes his way unruffled and unsubdued. He can make the food disappear in a marvellous way; whether young or old his capacity seems only limited by a sense of suffocation.

I remember one summer watching a very injudicious father-sparrow feeding his little son with sopped bread just outside the window. He kept on until the poor little fledgling, unable to swallow any more, began to gasp, with his beak wide open in utter misery. The father looked puzzled, and seemed to wonder what his parental duty might be when a son began to show such signs of distress. He evidently felt unable to diagnose the case, and having apparently but one idea, was preparing to administer still more food when I came to the rescue and let the poor little bird have breathing time in a quiet corner, else there would surely have been a verdict of "killed by kindness."

The hedge-sparrow is the most unemotional bird I know. I never saw one fight or flirt, or

seem put out by anything. It is a quiet, gentle bird, the type of a very homely person always in the path of duty, and never interfering with other people.

The rooks, attracted to the lawn by the failure of their usual supply of grubs, which cannot be obtained during hard frost, are being fed under the tulip-tree with acorns, beech-mast, and Indian corn. They are joined by wood-pigeons and jackdaws, and the whole party feed very harmoniously together, eighty or a hundred at a time, their glossy black coats shining brilliantly as the morning sun rests upon the moving crowd. When satisfied, away they fly, leaving a few stragglers behind, waiting to obtain some pieces of bread lying under the dining-room window; these they approach by side-long hops, and at last swoop down, obtain their desire, and are seen no more till a fit of hunger brings them back a few hours later.

As a rule the rooks do not visit the garden in summer, but keep to the fields and rookery until one special day in autumn when they find out that the acorns on one of our Turkey oaks near the house

are ripe, then they spend the entire day in clearing the tree and carrying away the spoil. A certain bachelor rook sometimes elects to spend the summer with us. I suppose his love affairs have gone wrong, and he feels misanthropic ; anyway, there the bird remains, and is always to be seen alone on the lawn, having no family interests, and never consorting with the rest of the clan.

We often smile at the untidy appearance of a rook's apparel. He has not only an ungainly walk, but the feathers between his legs seem to trail on the ground, which gives him a dissipated, unfinished effect, very different from the exquisite neatness of the close-fitting plumage of almost all other birds.

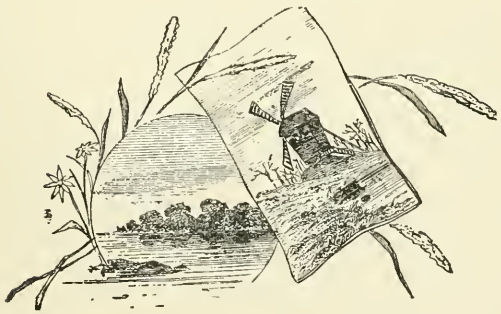
Two moor-hens came up from the lake and lived in the garden for several months in the winter, either resting under the evergreens, or, when the snow melted, most of the day walking up and down the lawn together contentedly picking up insects of some kind. When this food failed they would come and sit for hours at a time just outside the windows, enjoying oatmeal and sopped bread with the other birds.

At the close of the long and severe winter of 1890, it was most sad to see the number of lame birds, whose legs had evidently been frost-bitten, and amongst the rest one of the moor-hens appeared only able to hop with difficulty, one leg being quite useless. Special care was taken to place abundance of food where she could reach it, but after three days she failed to come as usual, and I much fear she, and many other birds, perished that winter from pain and hunger.

I must give a word of caution about another danger to which birds may be exposed, and which leads many of them to a miserable death. A friend has been telling me that frequently she had found starlings, blackbirds, and thrushes hanging from branches of trees in her garden, some dead, and some fluttering in vain efforts to escape. In much perplexity she had a ladder brought, and a man secured the unhappy birds, only to find in each case that their legs were entangled in human hair, which tethered them to the boughs until in some cases the birds had died of hunger and exhaustion.

Next door to my friend's house was a young

ladies' school, and it seems the girls had been in the habit of putting their hair-combings out of the window ; the birds in hopping about had become entangled in the hair, and in their frantic efforts to escape had, in some cases, drawn the knots so tight as to cut off their toes. I can hardly think people generally are so careless with their combings, but seeing what misery may arise to the feathered folk from want of thought in this respect, I trust I may be forgiven for this little word of caution.



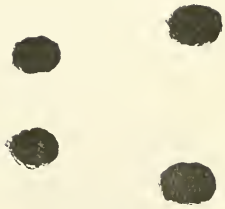
FOOTPRINTS IN THE SNOW.

NEW-FALLEN snow illustrates very graphically the nocturnal habits of our wild animals. If, living in the country, we take a ramble at night with a lantern just after a snowstorm, we shall see in every direction the foot-tracks of foxes, hares, rabbits, weasels, &c.

The life and habits of these animals being so entirely different to our own—our night being in a great measure their day—we see them but

Hare and Rabbit.

Water Rat.



Squirrel.

Rat.

Young Rat.

Pheasant.

FOOTPRINTS.

seldom, and do not half realise their activity until the snow reveals the fact that they have been roaming about our gardens and fields, seeking their food, love-making, gambolling and scampering to their hearts' content, until daybreak warns them to seek the safety of their coverts. I had long wished to be able to identify these footprints and learn what kind of creatures had been walking about this place during the night. The following notes and illustration drawings have therefore been made by a very careful observer residing on this place. As the severe cold would not admit of my following up the study, I felt glad to depute to one better fitted than myself the task of making sketches of the tracks and noting their special characteristics.

THE HARE.

Night after night "puss" takes a stroll through the gardens. Starting from the woods she comes up to the white lodge, along the flower-garden walks, and down the drive until the iron gates are reached; here she usually "casts around" and passes in front of the dining-room windows, then

by a zig-zag course to the wood in front of the stables.

She is not pressed for time, and her tracks are well defined, with a space of one foot to fourteen inches between the leaps. One morning, soon after the first snow, she made up her mind to stay in the garden for the day. One of the men noticed her tracks and followed her up, giving puss a great fright as she sat comfortably under the laurels. Her footmarks as she left the garden showed as much as twenty-two inches between the jumps, and the fore-track was an oblong hole of some six inches diameter.

A plot of khol-rabi left in the turnip field is a very curious sight. Between each row of roots the snow has been trodden hard with the continual tramping up and down of the hares which have been driven by hunger to visit this particular field in large numbers. The leaves of the khol-rabi were evidently the attraction, and to obtain them there has been a severe fight amongst the hares, as one can see by the snow being scattered and the bare ground left visible

FOXES.

In all directions can be seen the well-marked pads of the fox, and these show that Reynard does not wander about aimlessly; his tracks give one the impression of a business-like animal. All around the fowl-houses, barns, pigsties, and hay-stacks the fox goes at a steady trot, whilst, in the open, his footprints can be traced down to the lake, where he has evidently looked carefully around the edges and amongst the bulrushes in order to find a duck, water-hen, or some such dainty morsel.

One morning I found the remains of a water-hen; the fox-tracks were around it, showing that the poor animal must have been terribly hungry else he would have taken the bird home to enjoy it at his leisure.

After seven weeks' frost the foxes have become so starving that they have come out in the park early in the afternoon hunting for anything they could find in the shape of a bird or rabbit, and have been frequenting the turnip-field in the hope of securing a hare.

RABBITS.

A few of these little pests have made their way into the garden, and their footprints show clearly how driven they are for food. The drawing-room window and the space under the tulip-tree afford them some scraps every night after the birds have retired. One never sees a trace of them in the daytime; they come in from the common at night and go out again before daylight.

MOLES.

The snow mantle on the fields is mottled with heaps of earth, showing that the moles are busy and able to find food in the soft sub-soil of the fields. Near the farm stables the gravel comes to the surface and continues as far as the common. A mole bent on coming into the kitchen garden, travelled up from the home field until he came to the gravel; this being too hard for him to work through, he came up to the surface and continued his journey overland. The track was very curious: it consisted of a furrow in the snow two and a quarter inches wide and one inch and a half deep,

MOLE FURROW IN THE SNOW.

with faint claw-marks alternating. I fancy this animal seldom cares to come in contact with the snow, but was compelled to do so in this instance owing to the gravel outcrop I have mentioned. I have seen their tracks in a field recently manured ; the moles seem to have been attracted there by the worms they would possibly find in turning over the clods of manure.

WEASELS.

These little animals are not uncommon either in the garden or on the farm. Their tracks are very indistinct and blurred owing to the shortness of their legs.

When going at full speed they can take leaps twelve inches apart. On the common they have many hiding places. Often a rabbit is picked up dead, the weasel having sucked its blood but not attempted to mutilate the body of the rabbit. On either side of the wood-walk and nearly opposite are two weasel holes. Between the two the snow has been trodden into a regular path.

It would be interesting to know if one weasel owns both the habitations or whether there are inmates

of each house. If the former should be the case, does the weasel use one hole for a store-house? If the latter, then it must follow that weasels are sociable, yet I have never seen more than one at a time about the estate.

I think it is Thomas Edwards who records the fact that weasels do sometimes hunt in packs.

RATS.

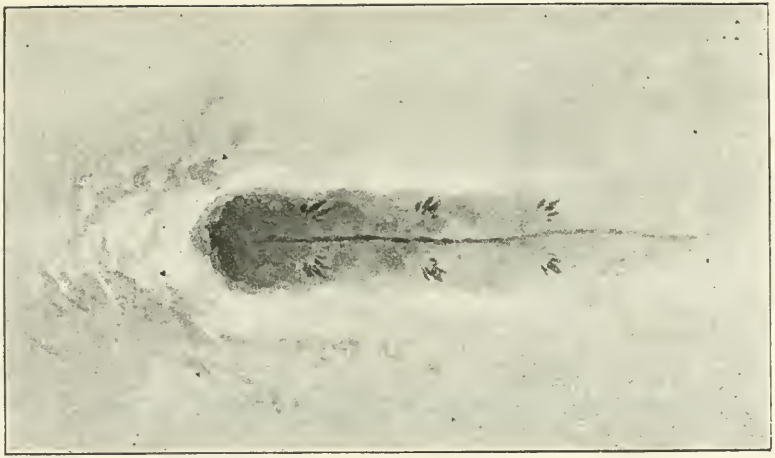
The feet of the rat are not very distinct in the snow; they are simply rounded hollows with faint claw-marks.

The rats do not venture many feet away from the shelter of the barn. After a little new-fallen snow their tracks can be seen passing from the barn to the pigsties, where they by chance get a little food.

The water-vole leaves a very different track from the land-rat; the fore-feet are closer together and there is a greater space between the fore and hind feet. It is, however, difficult in deep snow to get a good track of either species.

FIELD-MICE.

Both the shrew and the field-mouse have a



MOUSE TUNNEL IN THE SNOW.

curious habit of making tunnels in the snow. In a field where manure has been placed in heaps the tracks of mice are very numerous. They have also formed tunnels and galleries through the heaps in every direction.

Here and there the mice have ventured a little run on the surface of the ground, but only for a short distance; then they tunnel through the snow until they reach the heaps, over which they have constructed snow galleries. I would suggest that these precautions are due to the instinct of self-preservation in the wee creatures. Were they to run on the surface of the snow by night—and they are nocturnal in their habits—they would be too plainly visible to the owls, and afford them a dainty meal, especially as those birds, in common with other living creatures, are getting sorely driven for lack of food. I am confirmed in my theory that this is the true reason for making tunnels, by measuring the stride of the mouse in the open compared with that in the tunnel. In the former they are fully three inches apart, in the galleries they are less, showing that mousie has travelled at a more leisurely pace.

SQUIRRELS.

The squirrel tracks are very conspicuous. When wandering about under the trees looking for acorns, nuts, &c., the marks of the front paws are very close together, but tracks in the open, show all the paws widely separated, as the active little animal bounds along at a great pace.

The squirrels here seem to be utterly indifferent to frost and snow. Whilst the dormouse and hedgehog are drowsing away in their winter nests, the little squirrels are as busy as bees in summer time. Under the larch-trees one may see traces of their activity in the chips and gnawed pieces of the cones, and looking up one can see as many as five or six little balls of fur busily at work getting a meal out of the resinous cones. Presently one will leave his branch and go to see how his neighbour is faring, then the merry little animals may be seen at their best.

The intrusion is resented, and away they go after one another, round the trunk, along the branches, dropping perhaps some eight or ten feet on to an underlying branch, until they tire of their gambols and begin operations on the cones again.

The hornbeams afford the squirrels a great supply of food during the winter, and it is most amusing to watch them venturing out on the slender twigs for the mast. The twigs bend double, but the squirrel does not mind, for he is perfectly secure; if it breaks, well, out go his feet and legs parachute like, and he soon alights in safety on an underlying branch.

BIRD TRACKS.

The water-hen makes one of the most conspicuous tracks in the snow, her stride measuring nine inches from toe to toe, and the footprint itself being four inches wide.

The pheasant leaves a three-pronged mark, and in deep snow his hind toe makes a continuous line between the footprints.

In the wood between the white lodge and the lake can be seen the somewhat puzzling foot-tracks of the jay. They are rather indistinct: a hopping footprint side by side which in the deep snow does not leave such a clear imprint as the striding birds do.

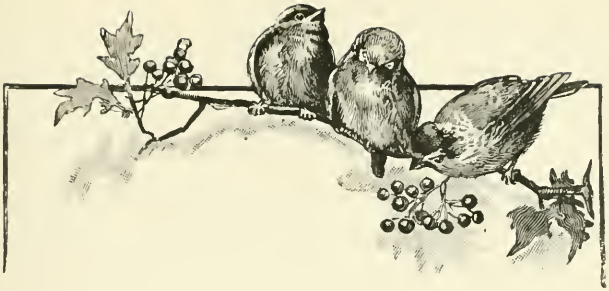
Here and there one sees four or five curved lines, which are made by the long feathers of birds as

they dig in the snow and spread their wings on either side to support themselves.

The wood-pigeon tracks are blurred by the breast feathers, their legs being so short that the plumage brushes the ground as they walk.

When a thaw sets in, all kinds of footprints are curiously accentuated. They then take the form of positive impressions, quite unlike the "negatives" that have been seen on new-fallen snow. The reason is exceedingly simple. The snow immediately under the feet of the animals and birds is, of course, pressed or moulded, and is naturally somewhat harder than the surrounding snow; the latter, being loose, melts away first, and so the impression of the track is left like a raised or embossed figure.

RECORDING IMPRESSIONS.



RECORDING IMPRESSIONS OF NATURE.

I SHALL presently be speaking of the actual treasures that may be brought home for the museum as the result of our travels; but let us now consider how we can retain the pleasure of such intangible things as sunsets, wide-stretching views, the thousand odours of wild flowers and scented leaves, the joyous songs of birds, the music of falling water, and the wondrous beauty of distant mountains or snow-clad peaks. I would advise

every young mind to enjoy such sources of pleasure to the fullest extent that opportunity may afford, and then try to describe in words what the eye and ear have been able to receive. I grant such word-painting is not easy, we have Ruskin's lament on that subject: "Hundreds of people can talk for one who can think, but thousands can think for one who can see and tell what he saw in a plain way." ("Modern Painters," vol. iv.)

This is extremely true, and is confirmed in an amusing way by Mrs. H. M. Stanley (Dorothy Tennant), in her book upon "London Street Arabs," in which she gives very clever hints about sketching from nature, and shows how much one is repaid by trying to draw even the commonest things to be seen in the London streets. By way of convincing us how unobservant we are, she says:

"Which of us could draw a hansom cab from recollection, or an omnibus? You would find it necessitated many a walk along the Strand, Oxford Street, Holborn, or any great thoroughfare. You would have to stare at the lamps, the shafts, the curve of the top, the seat of the driver, many a time before you could draw them. It would puzzle you

to draw a policeman's helmet, and you would probably make his summer coat too long or his winter coat too short. It would take you some time to master the fact that the policeman has seven plated buttons, that his belt has a snake-like clasp, and that his helmet has a particular curve at the back. You must examine him very closely—so closely, indeed, that he will probably examine *you* suspiciously."

Now, if this be the case in trying to use our pencil it will prove to be just as true of the pen. Until we try to write down what we have been taking in with our senses, we shall not be aware of how much we have missed of the real beauty of the delicate things that are given for our enjoyment.

The act of recalling the sources of our pleasure in country scenes will strengthen our powers of appreciation, and set our minds thinking.

A sweet scent will make us ask ourselves, "Where does it come from?" Is it wafted from the next field, or is it from the wayside flowers? Our walk becomes more interesting as we trace the perfume to its source.

Or a sweet-voiced bird sings in a neighbouring

copse, and we wait and watch till we can catch a glimpse of a grey coated little warbler with a black head, and on reaching home we turn to a book of birds, which tells us we have listened to the blackcap, by some considered next to the nightingale for richness and purity of song.

A little further on, perhaps, we see a small dead animal ; many would say, " It's just a mouse," but if we are going to write a description of our walk we shall want to know more about it, and, looking closely, we shall see it has a very long snout, short legs, and slender tail ; we ask a rustic working near by, and he tells us it is a shrew, which is not really a mouse at all, and when we read that it feeds on slugs and insects of many kinds, and clears away any dead birds or mice that would otherwise taint the air, we look with respect at the tiny creature which with restless activity is thus doing so much useful work in the world.

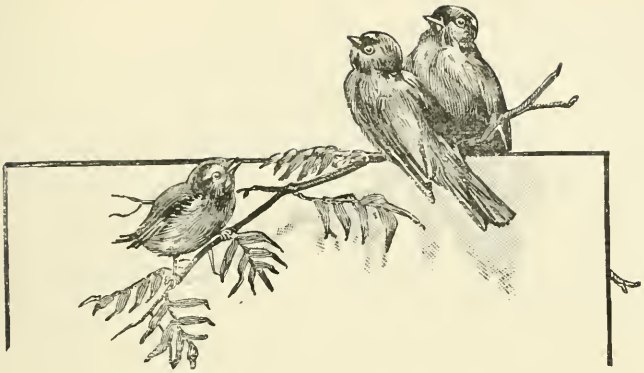
Evening is coming on, and through the stems of the trees in yonder wood we see lovely gleams of colour ; we hasten to a spot where we can enjoy the sunset and try to think how the wondrously mingled tints are to be described, so that some

friend whose ill-health keeps her constantly within four walls, may, in some measure at least, partake of our enjoyment. How hopeless a task we have set ourselves. We stand and gaze at the gorgeous sight, but how are words to tell of the lovely tones of orange, pink, and crimson, in delicate streaks and flecks on a pale blue, or it may be almost sea-green sky (for a stormy sunset will sometimes suggest that colour)? I am not going to attempt the task, but I would say, *try to do it*, if only for the increased power of appreciation of all succeeding sunsets which will be the sure result of even the feeblest attempt at word-painting. The invalid friend will be able to conjure up from your description not perhaps the sunset you saw, but something bright and beautiful that will bring refreshment to a mind possibly very wearied with the monotony of every-day life. Sweeter still will be to her the thought that, whilst nature was giving you such exquisite pleasure, you received only that you might bestow, you took thought and pains that she might be the sharer of your joy.

If I venture in the succeeding pages to give a few examples of such "word-pictures" it is only

that others, with greater descriptive powers than I possess, may by these very feeble attempts be led to taste the delight of trying to record their impressions of " nature-teachings."

THE YEW MOUND AT THE GROVE.



A BEECH WOOD IN SPRING.

"Tu, patulæ recubans sub tegmine fagi."—VIRGIL, *Bucolica*, *Ecl.* i.

"Beech, the most lovely of all forest trees, whether we consider its smooth bark, its glossy foliage, or its graceful pendulous boughs."—GILBERT WHITE'S *Natural History of Selborne*, *Letter I.*

WHO can describe the exquisite loveliness of a forest glade on one of those brilliant days in spring or early summer when the sun is pouring floods of light amongst the young beech leaves, and they are sending down their greenish golden glow

of colour upon the carpet of flowers beneath? There is a kind of unearthly glamour in the scene which makes one almost expect to see the fairies themselves come tripping out of the old hollow moss-curtained tree stems. Truly, it would need an elfin's pen to do justice to such a scene; but one may think about it, and perhaps convey some of its sweetness to toiling minds, weary with prosaic work, dwelling possibly far away from golden beech leaves, or nodding violets, peeping out of their thymy banks.

From the fallen tree stem where I sit, the road is carpeted with last year's leaves, all sere and crisp; out of the brown buds overhead thousands of silvery-fringed young leaves, unfolding and quivering in the gentle breezes, are sending their soft grey shadows down in flickering traceries upon the mossy ground. On one side there is a light bank, rich in colour, lent to it by lichen growths of many kinds, glossy ivy leaves are throwing their own picturesque garlands over the grey masses of rocks, amongst which old tree roots are twining in and out like great brown snakes seeking their prey. Here and there the

blue veronica looks out with its "angel eyes,"[1] pink campion is beginning to open its buds, the snowy stellaria holds up its tender little cups to catch the sunlight, and violets add their purple gleams to the picture. The graceful melic grass is waving its tiny purplish brown plume out of masses of rich green leaves, which as Keats so aptly says are growing "lush in juicy stalks." The bryony is climbing resolutely above the rest, flinging out long tendrils everywhere, making friends with all its neighbours and getting from each a little help in its upward course.

Now from the beech wood I am looking out upon a soft dreamy landscape, slopes of tender grass, masses of rounded foliage of all shades of colour; yet each tree has its own distinctive tone, walnuts looking almost crimson against the vivid green of the forward beeches which are already in leaf; others again, the later ones, still showing their golden brown buds, thrown up by the dark funereal yews, which abound here and give such richness and depth to the landscape.

There is no sound to break the silence save the

[1] A rustic name for the plant.

notes of birds, they have it all their own way, no discords here; no hum and bustle of busy man can reach this favoured spot, a nightingale is pouring forth gushes of song, a blackcap and robin are singing against each other, and a little wren peeping at me from behind a mossy stem is warbling after her usual hurried fashion, as if she had not another minute to live. Happy birds, to dwell in such a peaceful spot!

Turning to the left, where a great yew tree makes a mass of shade, I see a lovely shower of pure white buds, as though a snow-storm had been petrified as it fell; it is a white-beam tree growing by the yew, its slender twigs are not seen, only the snowy buds glisten and sparkle in the bright sunbeams, giving promise of the abundant leafage, which is ready to unfold from those silvery caskets. Just where the sunlight falls on a clear space of stony ground, a gem-like insect has lighted down, and rests there basking in the warmth, a vivid spot of emerald; at length it moves, colour flashes from its wings, away it flits into a mossy hollow, leaving the momentary impression of a trail of brilliancy behind. The brake-fern is sending up

everywhere its crozier-like stems, brown-haired and curled, keeping for awhile its future wealth of leafy shade in a firm grasp, till the warmth of summer sunbeams shall woo it to unfold into its full beauty, and form a mimic forest, wherein grey furred rabbits may frolic to their heart's content, and bronze-winged pheasants steal in and out, with wary step and lowered head, ever on the listen, lest some of their many enemies may be lurking near.

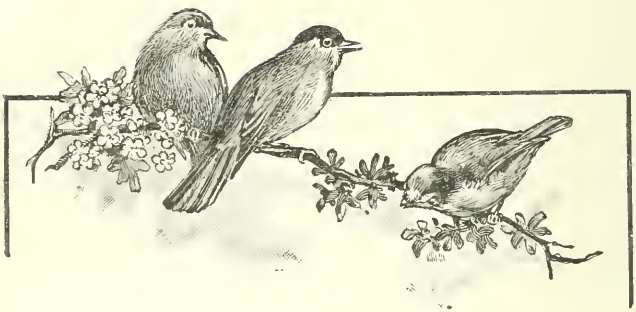
As I gather a fern-frond something springs from the ground and disappears as if the wind had suddenly caught up a red brown feather, but, peering furtively from behind a tree, I see a pair of black eyes and pointed little ears. They remain perfectly motionless for many minutes, then a sudden spring reveals a lithe young squirrel. Soon it is perched upon a branch, where it sits up and growls at me, striking its little paws angrily together, yet nibbling at intervals at some morsel of woodland diet, its graceful little feather of a tail curved over its back like a note of interrogation. Now it sees one of its own kind, an interloper apparently, for away go the pair

after each other, round and round the tree in a spiral chase, with such rapidity that one could almost imagine one saw a chain of squirrels garlanding the old stem.

Hour after hour may thus be spent in quiet musings upon the fair sights and sounds that greet us in the peaceful woods. Weary toil-worn minds will not fail to gather fresh strength and courage from such communing. Nature's voice speaks straight to the heart, refreshing and invigorating it as dew restores the sun-parched flowers at nightfall; the unrest and turmoil of the world is forgotten for a time, and every avenue to the soul is filled with new and soothing influences. Sweet-voiced birds tell their tale of happiness as they plume their tiny wings, and murmur their love notes to unseen nest-brooding mates. The rustle of the leaves, the swaying of the branches, the mysterious music of the woods, made up of a thousand harmonies blended together. No pen can describe it, but the ear attuned to Nature can drink it in and taste such joyous enchantment as lifts it for the time far above earth's toils and cares, and will leave for

many an after day a sweet refrain of echoing music to cheer the busy worker in the midst of surroundings which would otherwise bring to him no reminder of the green woods, where

> "The long drooping boughs between
> Shadows dark and sunlight sheen,
> Alternate come and go."



LAMORNA VALLEY.

THERE lies before me a granite boulder. It is framed amongst rich crimson bramble leaves, and sprays of wild-rose covered with scarlet hips are wreathed around it. It has for a background a valley of russet woods of oak and elm lit up by the level rays of the setting sun. Stretching far away into the distance are purple-tinted hills veiled with grey shadowing mists. Was not this a picture to set one thinking? Memory brings that Cornish valley before me as vividly as though my delighted

eyes still rested upon it. At the time one could but feast upon the surrounding beauty, noting each item that tended to the general effect, breathing the delicious air, scented with wild thyme and numberless plants whose fragrant leaves sent out their aromatic perfume as the cows and sheep browsed leisurely by the road-side.

This silence was only broken by the rippling of a little stream which wound through the valley.

> "The noise as of a hidden brook
> In the leafy month of June."

The plaintive cry of a seabird could be heard now and then as it sailed high over head, or the nearer sounds of happy chirpings came from the autumn-tinted trees. Such sounds as these seem rather to add to the sense of quietude, for they are calm and peaceful, and are only the natural outcome of one's surroundings.

Time passes all too quickly in this lovely spot, but before the light goes let us look more closely at this large grey boulder. Little ruffles of ivy are creeping up its sides out of the soft, velvety grass which forms its setting, the leaves are white-veined and flushed with a crimson tint, as if to

be in keeping with the vivid colouring of the brambles. Rounded bosses of softest green moss fill in the crevices, and where they cannot find place or soil in which to grow the grey and orange lichens grow and spread, and bear their varied forms of fruitfulness. Other kinds of dark brown or deeper grey form a lovely intermingling mosaic clothing for the bare stone, and further on where the boulders face the sea-breezes long fringes of grey-green lichens cover them on all sides so thickly as to deepen the impression of their antiquity.

These Cornish boulders send one's thoughts wandering back to the first ages of the world's history—to the times of earthquake and upheaval when wondrous forces placed them where they now remain. No human eye could have gazed upon those scenes when all the foundations of the earth were moved and the underlying granite came to the surface. If, however, we could then have been poised in air, what should we have seen? Imagination fails to conceive what it would have been to look upon the boiling sea and glowing rocks in wild confusion, the air like

a steaming cauldron, as internal fires uprushing turned the sea to vapour, the rolling of thunder and the crash of earthquakes prevailing for we know not how long, but at last, when the conflict of the elements ceased, the sun would at length arise and shine for the first time upon a newly created line of rocky cliffs standing still and quiet, and the blue waves would break softly at the base of the granite masses of Lamorna, Boskenna, and Tol-Pedn. Can we picture how they looked then? No tinge of green could be seen upon them—that comes as the soft mantle flung over them by gentle nature as years roll on.

Doubtless at first those heights stood up sharp-edged and crystal-bright just as they sprang from their lower depths, reflecting the morning sun with dazzling brilliancy. Age after age has been crumbling away their edges, rounding each stone, and weathering the surface to the quiet grey which is now their characteristic colour, varied here and there by tinges of metallic red and yellow. It is the hoary antiquity of these granite ranges as well as their enormous size which so deeply impresses the spectator. If only they

could speak the sermons they contain, if they could but describe the succession of races they have seen as dwellers in the land, from the days when the early Britons used these stones to form their own dwellings, down to these modern days when the railway brings tribes of tourists to walk over the land and make their flippant remarks on the grand old stones and rocks of a long past age.

If these boulders had a voice what chronicles they could give us! How reverently would we listen as they told of Druids marching in solemn procession amidst their magic circles of devout men and women, dwelling apart in their stone cells, witnessing by their pure and holy lives to the reality of the faith which they professed, leaving to their dwellings the inheritance of those saintly names which to this day are so frequently found in Cornish parishes.

Then would the records of the rocks go on to tell of invaders and invaded—of deeds of magnificent courage performed by land and sea by the long list of noble Cornishmen whose names will never be forgotten whilst the histories of true

bravery and daring remain upon the earth. Linked also with this western land is one name which will ever shine brighter than all the rest—the life which in consecrated loneliness was laid down in the mission field. The record of Henry Martyn is on high, and all that he did and suffered is known only to the gracious Master for whom he lived and in whose service he died.

The rose tints of the setting sun have been resting on the granite peak yonder; they fade away, the shadows are deepening, the blue mists of evening are creeping over the lonely valley. Farewell, grand old rocks! Rest in your patient solitude; one weary spirit has been refreshed by your felt, though unspoken, teachings. May others also listen to you in this sweet valley with hearts attuned to receive Nature's silent teachings.

"There is no speech nor language where their voice is not heard."

"Mountains and all hills: . . . let them praise the name of the Lord."

THE GROVE.

THOUGHTS AT MY LAKE.

IT is a lovely summer's day. A charming scene lies before me and the most absolute peace reigns around.

I am sitting in the open doorway of the chalet, looking out upon the lake. It is fringed with bulrushes, which are just beginning to throw up their green velvet spears. White water-lilies are floating in the midst of their shadowing leaves, giving a feeling of coolness and purity. Sometimes a breeze passes over the water

TREE REFLECTIONS AT THE LAKE.

and lifts a few of the broad leaves, curling them back so that they show their paler under surface, an effect so often seen and beautifully pourtrayed in Keeley Halswelle's pictures. Water-plantain is sending up its flower-spikes and strewing the water with its fleeting pink petals. Ruskin [1] has chosen this plant as an emblem of exquisite proportion and even balancing of parts; it will repay a little examination. The first whorl of flower stems, at about a foot above the water, consists of three principal branches, and between each is a smaller stem. Eight inches above is a similar whorl, but reversed in order, so that the large stems come immediately over the small stems beneath. The branchlets on each stem are on the same plan, and thus the most perfect balance is maintained, and the whole flower-spike forms a triangular pyramid of elegant form.

Bur-reed shows its clusters of round prickly balls so suggestive of the "caltraps" barbarously used on ancient battle-fields to lame the horses.

Plants and their names have great power of association. I seldom see the bur-reed but I

[1] "Seven Lamps of Architecture," p. 119.

think of far-away times, the spiked iron balls, and the din and clash of war.

Calamus, the sweet-rush, has its own special associations. The mention of it in Scripture and in classic poetry invests it with an interest for the student.

It is true some writers suggest that a grass[1] of the tribe to which lemon-grass and khus-khus belong may have been the "sweet cane" referred to by the prophet Ezekiel. For many years this plant failed to succeed here, an evil fate seemed to pursue it. The first specimen was washed away in the overflowing of the lake in winter; the next grew for a little while, but was uprooted by the swans; and the third plant was cleared away by accident when the lake was deepened. Now, however, a grand mass of it is flourishing and bearing its small spiky fruit. Even if this plant proves not to be the one mentioned as a component part of the sacred incense of Scripture it is certainly in use at the present day as an ingredient in the manufacture of perfumes.

The late American writer, Walt Whitman, has

[1] *Andropogon Calamus Aromaticus.*

given the name "Calamus" to one of the most interesting of his works, taking the aromatic root that conceals itself in the waters, and must be drawn to the surface at the sacrifice of its pink rootlets, to symbolise the most secret and refined emotions, timid, elusive, and discoverable only by those who have the courage and tact to descend to the depths of human nature.

The yellow flag is making a gay fringe of colour along the banks. It is the pretty *Fleur-de-lis* of France, a near relative of *Iris Florentina* which yields the sweet orris-root used for many fragrant purposes.

Truly this is a place to dream in! All sights and sounds minister to one's happiness. The quietude is not oppressive, for the warble of a robin, the plaintive cry of a coot, the distant laughing note of the woodpecker, these all speak of the sweet fellowship of bird-life near at hand.

"Stillness accompanied with sounds so soft,
Charms more than silence. Meditation here
May think down hours to moments. Here the heart
May give a useful lesson to the head,
And learning wiser grow without his books."

Now a happy little mother bird comes in sight. A moor-hen, with a tribe of black velvety ducklings swimming around her, is stealing in and out of the tall reeds, appearing and disappearing as she dives under water seeking food and rising to the surface at some distance when her breath is spent. Her little ones must be very tempting to the great pike lurking below ; I fear many a downy babe falls to his share during the summer.

There swims a water-rat or vole, only his head visible as he makes a V-shaped ripple on the smooth water. I always like to say a kind word for the water-vole ; men and boys are apt to think that they have done quite a meritorious act when they have killed one, as though they had got rid of a noxious animal; but, unlike the land-rat, the vole is a vegetable feeder, consuming duckweed, reeds, and rushes, and thus it does only good by its innocent life. Any one who has watched a vole sitting up like a squirrel, making its morning toilette, licking its fur with a small red tongue, and cleaning itself like a cat, may see at once that its pretty round head is quite different from that of the ordinary rat and

is really more like that of a large bright-eyed dormouse.

There is a pleasant sound of falling water as the outflow of the lake passes over a sluice close to the châlet. The constant stream of water has worn a deep hole beyond the barrier, and there one may see some baby jack disporting themselves. I once captured three of them in a hand net, and they lived for some months in my aquarium. I must say they were the most stolid, undemonstrative young fishes I ever met with. Nothing seemed to startle or surprise them, they seldom moved, they ate their food drearily, and yet all the while they grew fat and flourishing, so I supposed it was their nature to be quiescent. However, one day an idea did cross the mind of one of them; he experienced a longing to eat one of his friends, but as the three were all of the same size, the task was a difficult one to carry out; still he made an attempt, and I saw him gravely swimming about with a brother in his mouth held crosswise; naturally he made no way, so after careering about for a time he dropped his respected relative who seemed none the worse for the attack. I thought

after this indication of cannibalism it would be decent to let them return to their native pool.

I am often fascinated by the beauty of reflections in water, whether it is only a single rush-stem faithfully repeated on a still surface, or the higher beauty of the most graceful of birds which "floats double—swan and shadow"! I shall never forget seeing a wild swan on one of the Norfolk Broads flying past our boat, on and on for a quarter of a mile, we could see the beautiful creature perfectly mirrored in the lake. It kept close to the surface, lazily flapping the great white wings which bore it out of our sight.

Another bird-picture is in my mind. It is one which could hardly be surpassed for wealth and brilliancy of colour. One evening as the sun was setting, I saw a peacock in grand plumage on the roof-parapet of Oatlands Park Hotel. The bird was restlessly moving up and down, evidently about to seek its usual roosting place, which was an elm-tree at some little distance. I resolved to watch, hoping I should see the lovely creature take flight, and in a few minutes it spread its wings and tail and sailed away in the full splendour of the

THE CHÂLET AT THE LAKE.

setting sun—it was a gorgeous sight, almost too dazzling to look upon, a thing of beauty never to be forgotten. One could imagine how splendid such birds must look flying about in Ceylon forests where a tropical sun lights up their metallic plumage.

Returning to our own quiet lake, I might speak of the reflection of the trees in the smaller piece of water behind the châlet, as shown in the plate. From its sheltered position the water is seldom ruffled by wind, which may account for the remarkable sharpness of the shadows thrown by the tree-stems on its margin.

The view of the châlet takes in a plantation of foliage trees of specially rich colouring. Golden elders, purple beeches, white poplars, variegated maples, and the sugar maple of America afford in autumn a great variety of tints. Golden elders develop a rich chrome yellow early in summer, and are often mistaken for flowering shrubs when seen from a little distance. I sometimes wonder they are not more frequently planted in combination with the trees I have mentioned as a means of giving variety of colour in park and belt-plantations.

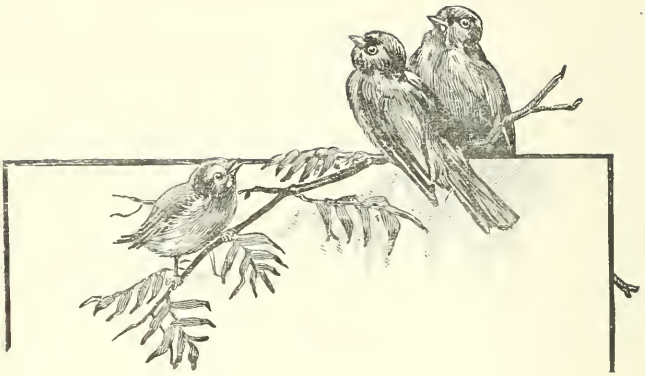
Although our house is nearly a quarter of a mile away, it stands sufficiently high above the level of the lake to be perfectly reflected in it, and at night when the windows are illuminated and the water is unruffled the effect is charming. The rookery is near by, and the pleasant cawing of its tenantry gives an additional charm to the quiet hours one may spend here. Even in winter there is much to see, for then the various migratory birds visit this piece of water and make themselves quite at home for some months. It is amusing to watch the wild ducks, coots, and water-hens trying to walk upon the ice and seeming much disconcerted at their involuntary slides.

Gulls occasionally visit us, and when the grass in the fields around is growing for hay and all is quiet and undisturbed, I have seen as many as ten herons quietly fishing or standing motionless in the water. Their home is at a reservoir about half a mile off; they only visit here, and usually but two or three can be seen at once.

The time to see the lake in full poetic beauty is in the evening, when it reproduces the lovely tints of sunset on its glassy surface. The eye never

SUNSET VIEW AT THE LAKE.

wearies of such a scene. The purity of colour, the variety and intermingling of tints, the stillness, the soft grey mist gradually enfolding the landscape, all speak to us of peace and rest. We, too, must turn homeward and leave the lake to its repose, one last glimpse showing us the rising moon throwing a streak of light upon the darkening water.



WHY SIMPLE THINGS GIVE US PLEASURE.

STANDING in a country churchyard one summer's morning, the exquisite beauty of a flowering grass-stem and its clear, bright shadow cast on a white tombstone set me speculating as to the cause of the pleasure I felt in looking at such a simple thing.

What are the elements of the charm of beauty? and why does the mind sometimes receive a greater thrill of delight from the tints and form of a single leaf, a dewy cobweb, a frosted spray, or

SPIDER'S NEST.

even a prismatic dew-drop, than from a magnificent hot-house flower or wide-spreading landscape? I still seek an answer to these questions. These thoughts have doubtless occurred to many minds; indeed we may continually trace them in poetry, in all those simple touches which define minute objects as sources of pleasure to the eye or ear. In well-known lines Wordsworth says—

> "That to this mountain daisy's self were known
> The beauty of its star-shaped shadow, thrown
> On the smooth surface of this naked stone!"

His eye must have been arrested by the loveliness of shadow form, and his genius enshrined the beautiful thing in immortal verse.

And again,

> "The daisy, by the shadow that it casts,
> Protects the lingering dew-drop from the sun;"

and the well-known lines—

> "A violet by a mossy stone,
> Half hidden from the eye,
> Fair as a star when only one
> Is shining in the sky."

These are lovely examples of delight in simple things.

May one reason be that imagination is called into action by some subtile combination of forms complete in themselves and yet suggesting other thoughts? Let us apply this test to a dew-begemmed cobweb, to my mind one of the most lovely things in nature. Its airy lines, its absolute symmetry, its fitness for its purpose, and the wonderful fact that it is created by a dull brown, hairy creature, all these things flash into the mind at once and set it thinking and admiring such perfect work and skill.

A second glance shows us that each thread is decked with thousands of minute dewdrops, and imagination is again busy picturing the cause of this lovely effect.

The early morning mists caught by the delicate threads, and condensed and held there, add a fresh charm to the lacework which waves to and fro in the passing breeze. A single glance at a thing so beautiful and perfect cannot fail to give mental pleasure. Now let us think of the grass-blade with its shadow. Here again there is exquisite beauty of form and delicate colour still further enhanced by the perfect repetition in the shadow cast upon

the stone, the whiteness of which throws out the brilliancy of the dark lines caused by the sunrays. In this case also there is completeness and the possibility of receiving at one glance the perfect impression of beauty. The grass has its flower at the end of the stalk, which suggests to imagination perfected life, the end achieved, and then the fleetingness of it, brings other and deeper thoughts. "The grass withereth, the flower thereof falleth," &c.—truly a fitting text to be preached to us by the "green grass" in God's acre. How it speaks of man's life with its fragile tenure, so often typified in Scripture by this symbol, the waving grass in this churchyard with its many graves may well give rise to a host of thoughts and preach its own eloquent sermon to the passer-by.

It is curious that I have amongst my treasures another "thing of beauty" which is connected with both these types. Years ago I found on our common a spider's nest formed of a single head of feathery grass curled by the spider into a perfect imitation of a cathedral crocket. The spider lived in the centre of the nest, which was woven together with great neatness; I have kept

it carefully for many years as one of the most poetic fragments of fairy architecture I ever met with. Complete and beautiful in itself, I always admire the tiny thing and wonder at the skill of the artisan. I possess also the nest of a dormouse made entirely of horse-chestnut leaves; how the little mouse could have constructed such a charming work of art will ever remain a puzzle. Each leaflet has exactly the same curve, one is placed within the other, all the stalks being uppermost, and the whole thing is a perfect sphere, so where the mouse got inside and how it finished off its dwelling it is not easy to divine.

I am no nearer to the solution of the cause of pleasure in simple things, but it is a gift to be thankful for if one has the faculty to see the beauty and to enjoy it, since it exists everywhere for opened eyes in the wide realm of Nature.

DAME NATURE.

WHAT a charming beautifier Dame Nature is! She likes that things should harmonise, she knows which colours will go together better than do all the artists in creation, and, what is more, she will not have discordant tints in her domain if she can possibly help it. If, for instance, man chooses to erect a staring new wall of an excruciating brick-red, out of all keeping with its surroundings, then the old dame rises to the occasion, and with a gentle murmur of pity for

his lack of taste, off she goes to her stores, and empties out of the next soft zephyr that is going that way, a whole lapful of seeds of lichens and mosses; they fall into the cracks and crannies in the wall, finding, it may be, only a little dust to root into, but they are patient and hopeful and do their best. They drink in the morning and evening dews, the life within them begins to stir, and soon we see tender films of grey and green beginning to tone down the fiery red bricks. A few months pass by, and we find these films have grown into patches of lichen spreading in circles here and there, soft as velvet, and of all shades of delicate colour. Some of these lichens are like a mouse's coat, others pale creamy green shading into buff and grey; all have some form of fruitfulness in tiny shields or cups strewn over the crinkled surface. Then in the crevices of the brickwork are the vivid green mosses bearing their little brownish-crimson urns with waterproof covers, which little beakers will in due time bend downwards and empty their stores to enrich still further the bare and barren wall. The zephyr came again later on bringing with it a supply of the seeds of wallflowers, willowherb

whitlowgrass and many other plants, which seeds were given into the keeping of the mosses and from out their rounded cushions young plants, laden with flower-buds, are quietly growing up, and soon sweet blossoms will give their odours to the zephyr to be carried far and wide.

Thus Nature, dear old beautifier! will have attained her end and given man's ugly work a beauty of her own, so that as the eye wanders down the lane past many a tree-trunk mantled with ivy, the tinge of red in the wall, softened as it is by its veil of lichens and mosses, comes in harmoniously, and no longer strikes a jarring note in the scale of colour.

Each year only adds to these beauties until a time-worn wall with crumbling bricks held together by masses of ivy, decked with the crimson leaves of herb robert and masses of yellow and brown wallflower, becomes a thing of real beauty.

The grey lichen-stained wall which forms the boundary of many of England's stately homes has a voice of its own. It speaks of a long-ago time when those who perhaps now lie peacefully sleeping in the churchyard were young and strong and used

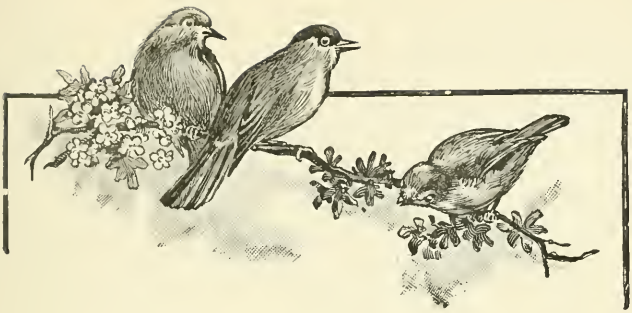
to climb over it in their youthful rambles ; yes, it *has* its lesson for those who will listen.

Man lives his short life and passes away ; would that his aim were always to make life more beautiful for all who live around him. Added years only enhance the venerable beauty of trees and rocks and hills, they gain touches of colour and picturesque beauty of form by the slow corroding touch of age, and we can recall many a place where

> " Cushioned mosses to the stone
> Their quaint embroidery lent."

All these things speak of the harmonious power of beneficent Nature, and make us grateful to her for the silent work she is ever carrying on. May we, like her, veiling with tender loving charity the harsh and rugged things that meet us in our daily life, do all that in us lies to make this world of ours fairer, brighter, and happier for all who dwell in it!

HOME RECREATIONS.



HOME RECREATIONS.

A SENTENCE read long years ago and copied into my extract-book, made a lasting impression upon my mind.

I am sure that I owe to it a great deal of the happiness of my life, and, as a well-known writer[1] says, "If you happen to have a good idea you ought to send it floating about in the world to do good to other people." I think I shall act upon his suggestion and repeat this simple sentence which I have found so helpful in my own case.

[1] The Rev. P. B. Power.

It was to this effect, "Be sure and cultivate an undergrowth of little pleasures, for few great ones, alas! are let on long leases." These "little pleasures" must be as various as the minds that desire refreshment, therefore in the following pages I will endeavour to speak of a few of the things that I have found to be pleasant occupations for leisure moments in the country, not only enjoyable to oneself, but I would hope in some measure profitable to others.

I have spoken of writing one's impressions of beautiful scenery, &c., for the refreshment of home dwellers; now I would make some suggestions about the possibility of bringing to our fireside some of the treasures we may have lighted upon in our travels.

I have a good deal of sympathy with the poor man who, living in a dingy street in London, possessed but one small window-box in which grew a flourishing crop of nettles! On being remonstrated with for growing such common-place things, he replied, "Well, but you see they're such *very fine nettles*, and they bring a whiff of the country to me as I sit at work."

So, if we bring back our plants of sundew from some Cornish heath, or gentian from an Alpine valley, and watch their delicate beauty unfolding day by day ; or, may be, we set up our aquarium or Wardian case of ferns, we, too, shall have at hand something which will, by its associations, bring back to us much of the enjoyment we experienced when, during our holiday time, the perfumed air, the elastic turf, and the songs of birds, seemed to lift us into a new world of pleasurable sensations.

Hitherto I have spoken only of the personal happiness these undergrowths of pleasure can give, but far above and beyond that is the aim to bring home with us such things as will create happiness by other firesides, especially those shadowed by long-continued pain and weary confinement within four walls. If a family of happy children is taken to the seaside (and most people go away from home at some time in the year), probably all goes on very brightly with the young folks at first, the change is delightful, and every day brings some fresh excitement, but after a while, if the days are passed in merely selfish enjoyment, it is apt to pall, and a long spell of wet weather, and no getting out

of doors, will bring trying times for the most patiently enduring nurse and mother.

If, however, the children have been trained to think in what ways they can cheer and interest the invalid "Aunty" at home, by their collections, or by preparing some little gift of plants, or shells, or curios in some form or other for the poor old dame who never can leave her cottage, or for the servants at home, their hours in the country, or at the seaside will be rendered far happier than if they had merely sought how best to enjoy themselves. Whilst adding to their own knowledge of natural objects they will be learning to make unselfish plans for the happiness of others.

"For we must share if we would keep
That good thing from above,
Ceasing to give we cease to have,
Such is the law of love."

THE GROVE MUSEUM.

HOME MUSEUMS.

No. 1.

GENUINE students and lovers of nature —indeed, any of us who find it a duty as well as a pleasure to learn as much as possible of the mystery and beauty of the Divine Wisdom revealed to us therein—will never be satisfied with mere book knowledge of the wonderful world in which we have been placed. The dweller in the country

lives all day in a vast storehouse, in which the Creator shows us His works, which we roughly divide into animal, vegetable, and mineral kingdoms, each in its natural relation to the others, each helping in the formation and support of the others. There is never any possibility that a dried and stuffed and ticketed collection, no matter how extensive, can give us teaching like this. But too often those who have most opportunities of wandering in the vast divinely-constructed museum of nature heed it the least. It has often given me the greatest pleasure to see, in the many thousands of Londoners I have welcomed here, a keen appreciation of the "common things" of the country. The woods, the gardens, the lake, give my visitors innumerable objects for wonder and admiration, just as new to them as the interesting pets from foreign lands, and the collection of curiosities from all parts of the world, which, by the help of kind friends and correspondents, I have been gathering together for many a year.

For those who cannot study nature "at home" in the country, there are now extensive and well-arranged collections accessible to all. The grand

Natural History Museum at South Kensington, the splendid Museums of Botany at Kew, and the great collection of minerals in the School of Mines in Jermyn Street—these, or any of these, will give opportunities for months of study, with increased pleasure and knowledge every day. But however much we may use our opportunities of study, either in the fields, woods, or in the great national collections, most nature students will like to have some private collection of their own, to which they may turn in leisure moments, or which they may re-arrange on a rainy afternoon. Almost every article in such a collection will have for them some private association—the mode in which they acquired it, the locality in which it was found, the friends, perhaps now no longer here, who shared their delight in securing the prize.

I can speak from practical experience of the great pleasure of possessing a home museum, and, believing that others may welcome a little information on the subject, I will try and give some simple suggestions which will enable those who are anxious to do so, to make collections of their own ; it is an easier and more inexpensive matter

than might be supposed, and I can truly say it affords a life-long source of interest.

My little museum had, like many other things, a very small beginning. As there was plenty of space on the walls of the billiard-room, I had a case made to contain specimens of nuts and seeds which had been stored up in various cupboards and boxes about the house. These objects, neatly arranged and named, were hung up in a wall-case, and formed the nucleus of the future collection.

As I have taken an interest from my earliest years in all kinds of foreign seeds, such as those of palm-trees, tropical plants, fruits, &c., friends were often kind enough to give me any they had obtained in their travels abroad. Some I met with in various shops; and thus in time I had sufficient to fill one side of a wall-case, measuring four feet by two feet, with a glass front. In the opposite side of the case I thought it would be interesting to arrange specimens of many kinds of drugs used in making ordinary medicines. I therefore obtained from chemists such articles as castor-oil seeds, a piece of Turkey rhubarb, specimens of

different barks from which quinine and other tonics are made, colocynth gourd, aloes, manna, and a great number of gums and other substances which are required in the healing art, not forgetting a few blister beetles and cochineal insects.

The case was lined with white paper, and divided into columns by thin slips of beading, nailed down with small brads. These columns were again divided horizontally by beading, thus leaving little spaces three inches by two, in each of which a specimen was placed, with its name and special use affixed. It was a great interest to me to read about all these medical drugs, to learn where they were obtained, and how prepared and used, and many a happy hour has been spent in explaining about them to the hundreds of poor people who come from dreary homes in London to spend long summer days in my place. My own visitors, too, often plead for a chat in the museum when kept indoors by wet weather.

The next case contains a little of everything, and is intended to show how teachers in schools may be greatly assisted by having specimens of whatever they are speaking upon to show the

children, and be thus helped to retain their attention. I have made several of these "object lesson cases" for national schools, and always find them most gratefully received. As I have already fully described how these cases are made in a little book easily obtainable,[1] I will not here go into further details.

I may create a smile when I speak of my "skullery" as being the next object of interest we come to in the museum; but what else can I call a collection of more than a hundred skulls? They are mostly those of birds, ranging from the eagle to the wren, and from the swan to the stormy petrel.

When one speaks of the study of anatomy, the word seems to suggest something that can only belong to medical student life—something quite beyond the reach of young people, and possibly not desirable even if it could be attained. I think there is, however, a word to be said for the intelligent study of bone-structure, which, from my early childhood, has always possessed a singular fascination for me. The skull of a bird neatly prepared,

[1] "Home Work for Willing Hearts." S.P.C.K.

white as ivory, perfect and beautiful in its adaptation to the conditions of the bird's life; a portion of the spine of a fish, cleaned and dried before the fire, showing the many joints which make it flexible, the hollow for the spinal marrow, and the bones to protect it from injury; the foot of a mole, with its intricate structure; these and endless other quite simple preparations would afford young people hours of delightful study. The bones, once prepared, can be labelled with English and Latin names, and kept in the home museum ready to be shown to young friends, or made the foundation of elementary lectures to country lads and parties of poor people. It has sometimes been my pleasant occupation during long winter evenings to meet about twenty or thirty boys at our village-room, and, taking my collection of prepared animal and bird skulls, I try to explain in very simple language the various interesting things that can be learnt from them. The boys give very close attention, and look with such eagerness at each little bone as I hold it up and talk about it, that I long to give them each a specimen to take home as a reward for their goodness in sitting

quietly as long as I am able to stay to talk to them.

The only articles required for preparing skeletons are these: a small saucepan, a penknife, a carpet-pin, and a nail-brush. Suppose we ask for the head of a duck from the larder, either with feathers on or without will not matter. We place it in the saucepan filled with hot water, and let it boil gently about twenty minutes. By that time it should be possible to take off all the flesh, and by rinsing the head and carefully using the brush, at length we obtain a clean skull, which will only need to be dried before the fire or in the sun until whitened, and then it will be ready for the museum shelves. The brain is easily got rid of by inserting the head of the pin through the orifice at the back of the skull, and working it about until, by constant rinsing, the head is emptied. The lower half of the beak should be cleaned separately, and, when dry, a small indiarubber band will keep it in its place. A label with English and Latin name should be attached at once, else after a time one may not be able to tell the exact species when numerous skulls are arranged side by side.

The length of time a head should be boiled must vary much, according to the size of the specimen, and this can only be learned by experience. A robin or a mouse's head only needs about ten minutes, and if overdone will fall to pieces. Some animal skulls are extremely difficult to prepare; the mole, for instance, requires very delicate handling, else the fragile cranium comes to pieces; yet it is well worth taking trouble to obtain a perfect specimen, for the jaws are furnished with such formidable rows of teeth that they suggest those of a miniature crocodile, and one can well understand from them, the mole's power of crunching worms and fighting with its own species. It is very instructive to place on the same card the upper and lower jaws of a shrew and a house mouse; one can then see how they differ, the former being insectivorous and flesh-eating, and the latter, belonging to the rodentia, able, with its powerful front teeth, to gnaw through wooden planks and find its way into store-closets, as the housekeeper often finds to her cost.

Another interesting preparation is a bullock's foot. We should order from the butcher what is

called an ox-heel, and ask the cook to boil it as she would to make a shape of calf's-foot jelly. When this is done the heel will be still intact, and we can begin to take it to pieces; and as each bone is cleaned it must be placed on a large sheet of paper, and one after another each one must be replaced next to its fellow, and never moved again until dry and white. Then, having a piece of cardboard large enough to take in the whole foot when placed lengthwise, we may begin with a needle and stout thread to tack down each bone in its place, till the whole is completed. When I am showing my museum to a group of poor people, I always draw their attention to the bullock's foot, and enjoy their amazement at the way in which the bones fit in, the velvet softness of the joint surfaces, and the sculptured beauty of the shank bone.

Subjects for anatomy are very easily obtained, the turkey at Christmas, the goose at Michaelmas, the game birds in constant use, the rabbit and hare, all afford interesting skulls, and their feet are also worth retaining, since if nailed to a board and dried before the fire they will when named

and arranged add interesting items to the museum walls.

In the heads of cod, haddock, whiting (and possibly many other fishes), two small snowy-white bones are to be found, one in either half of the skull. They are supposed to assist the power of hearing and are called otoliths or ear-bones. The skull must be broken carefully to pieces to find them, they lie in the two cavities in the back part of the head and resemble very small white almonds.

These bones are well worth preserving for several reasons. Those of each individual species, neatly mounted on a card, form an interesting museum specimen, as they vary in shape and size in different fishes, and are unlike any other bones I am acquainted with.

Then they also have an artistic use. I collected these otoliths for several years till I had a sufficient quantity, and then they helped to make a very original banner-screen. If five of them are placed starwise they form a perfect jasmine flower, and sprays of green beetle's wings on a ground of rich dark coloured satin or velvet, with these jasmine flowers introduced have a charming effect. Each

otolith and beetle-wing must first be neatly tacked in its place with fine white and green silk and then gold braid sewn round each so as to hold them firmly in place, the braid thus forming the stems of the sprays. A few delicately embroidered butterflies, studied from nature, will add colour enough to make a very agreeable work of art.

Beautiful white bones are to be found in the brown outside skin of a large turbot, and these also would be worth preserving to be used in needlework. They are like tiny morsels of hoar-frost, white and delicate; they only need to be soaked in hot water to get rid of the gelatinous skin in which they have been embedded and this is easily cleaned away with a nail brush. Two stitches with fine white silk will affix them to any textile material and in combination with embroidery and gold thread very pretty effects may be obtained.

I once picked up a dead swallow, and with great care it was at last prepared whole and fastened to a card. A truly wonderful little skeleton it proved to be, so fragile and delicate that a careless touch would crush it in a moment, and yet when alive

the possessor of that tiny frame could wing its way, mile after mile across the sea, seeking by unerring instinct some warmer land in which to pass the winter.

Thus gaining insight into the formation of the wonderful creature we call a bird, which, in all its parts, is a miracle of contrivance and adaptation to special ends, must surely increase our love and reverence not only for birds but, indeed, for all living things, since in whatever direction we may pursue our studies we are met with such evidences of Divine wisdom and skill that a thoughtful mind is filled with wonder and praise. I must always maintain that leading the young to investigate these things for themselves in a reverent spirit cannot fail to minister greatly to their present pleasure and eventual mental profit.

The facial line in birds is most interesting. I am not learned on the subject, but following Camper's ideas I find that it *is* usually those birds with an upright skull that possess the most intelligence. A line drawn from the tip of the beak of a blue-tit to the apex of the skull will show a far higher angle than the same test applied to the head

of a willow wren or tree creeper, and charming as the two latter birds are they have not a quarter of the "nous" of the clever little tit. The possession of a collection of skulls opens the way to many an interesting line of study in connection with the living birds and their ways as seen in our gardens and fields.

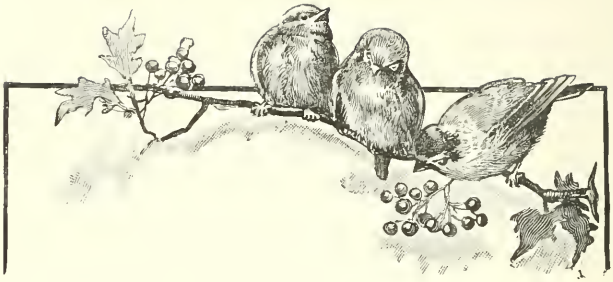
The study of bone structure tends to cultivate many useful qualities. Neat handedness is very essential, for one clumsy touch may simply mar an hour's careful work.

Patience will also be developed, as I can testify! I once placed some small skulls in a pan of water in the garden in order that they might skeletonise by soaking. They were nearly ready to be washed and cleaned when a family of enterprising ducks found out the pan and reduced my skulls to a delicate mince. Occasionally I have over-boiled some rare head and then I knew that having spoiled this one I might have to wait for months or years before I could obtain another.

All these disappointments are teachings, and a true naturalist is never discouraged. "Everything comes to him who knows how to wait" is an ex-

tremely true saying. I know hardly any better corrective for the natural impatience of youth than the steady plodding work involved in carrying out any of the branches of study I am endeavouring in this simple book to bring to the notice of young people.

If their elders will take kindly interest in the first crude attempts children make to follow my directions, by showing sympathy and providing the few requisites enumerated, they will be rewarded by the knowledge that their young people are being led into new sources of happiness and are laying the foundation of healthy tastes which may stand them in good stead all through their future life.



HOME MUSEUMS.

No. 2.

BEFORE speaking of the cases of minerals in my museum, I will try to explain how easily such objects may be kept and shown without having expensive cabinets to contain them, which is often a difficulty in the path of young mineralogists. Supposing there is but limited space, small shelves three inches wide, and three or four inches apart, can be made of plain deal, stained brown, and fixed against the wall, with glass doors to keep out dust. Any carpenter can

carry out this plan at very little cost. An immense number of specimens can thus be arranged, and are much more readily seen in this way than in the drawers of a cabinet.

There is, to my thinking, an unfailing interest about stones of all sorts and kinds. They reveal so much about the history of our country, and tell us in a mute sort of way that they are the remains of long past ages, and have survived all kinds of upheavals, glacial periods, and changes of temperature. Wherever one may happen to be, something can be picked up in the way of minerals for the shelves of the home museum, and those fossils or stones which we have ourselves discovered will always be reckoned far more valuable than any bought specimens. On this north side of London, where we live on very high ground, which was once covered by the sea, the pebbles are all rounded by attrition, and many are brittle and full of cracks from their great age; some polish well and show beautiful colours and veinings; others contain impressions of fossil shells and sponges. The ventriculites, it is true, are generally broken in the middle; indeed, it is rare to find

any perfect fossils, but even the pieces are worth preserving, as they can be compared with the perfect forms figured in geological books. The flints, with cavities filled with quartz crystals are of many forms and sparkle brightly. Chalcedony and jasper can be picked up in our roads. Large masses of pudding stone occur in the fields, and when cut in half they take a high polish. A large artificial cave in the grounds here is mainly formed of blocks of this stone. Now, our neighbourhood is not by any means rich in minerals, but I instance the foregoing to prove that even here, stores for the home museum may be found and utilised. No doubt in other places a far greater variety could be obtained.

Most people have several "outings" in the course of the year, when usually there would be opportunities for collecting many kinds of specimens—fossils from the chalk or the lias, granites from Cornwall or Scotland, ores from any of the mining districts, pebbles from the seacoast; all these and many more can be obtained in our own country, and of course a foreign trip would afford a much wider range of possibilities for acquiring geological specimens.

The classifying and arranging the minerals thus obtained in various ways forms a delightful occupation for intelligent young people when kept indoors during the holidays by wet weather, and it is pleasant to watch the keen interest with which fresh specimens are welcomed and talked over, each one having, perhaps, its own personal history. This is the case with my own mineral possessions ; one stone was picked up in the bed of an Alpine stream and always recalls to me the beauties of scenery, the purity of air, and the sweet scents I enjoyed during that mountain ramble. The limestone fossils speak to me of picturesque Derbyshire, with its wonderful caverns, stalactites, and crystals. Jaspers of every shade made up the beach at Aberystwith, and a glance at the polished specimens I brought home with me from that shore never fails to bring back to my memory the soft blue distances of the Welsh hills and the grand masses of the old Silurian rocks. My knowledge of geology being but very elementary, I had often found it difficult to ascertain the names of my specimens, even with the aid of books. I was therefore glad to discover that any professional

mineralogist will correctly name one's treasures for the small sum of one penny each. When this is done, the classifying becomes comparatively easy. If one watches for opportunities, small pieces of minerals, never likely to be found by oneself, are easily obtained by inquiring for a working lapidary's shop. It will probably be found in a back street, kept often by a poor working man, who will be glad enough to obtain and cut small specimens of whatever we are seeking. As a rule it is best to avoid the showy lapidary shops at the seaside, as they are apt, as a rule, to be high-priced and unsatisfactory.

I find the inner tray of ordinary matchboxes a very convenient receptacle in which to place small stones or crystals. The trays being all of one size and shape, they fit in rows and take up little space ; when re-papered, with some white cotton wool at the bottom, they look neat and keep the minerals from getting mixed.

Models of foreign fruits occupy the next wall case, and with them are some huge pods of tropical plants, such as the Entada, or sword bean of the East and West Indies. This is said to attain a

length of from six to eight feet, and its seeds are converted by the natives into snuff-boxes, scent-bottles, spoons, &c. I have a *coco de mer*, or double cocoa-nut, the fruit of a tree which is only found growing on two islands of the Seychelles group, and in which the late General Gordon took a special interest. He greatly lamented that this magnificent palm is gradually being eradicated by the constant felling of the trees to obtain the nuts, and urged that steps should be taken before it is too late to hinder the thoughtless destruction of such a rare and noble tree. The palm itself takes a century to come to maturity, and the nut, although it attains its full size in four years, requires ten years to be fully perfected, when it weighs about forty pounds.

The other specimens in the case are a dried baobab fruit, a pod twenty-six inches in length, containing the seeds of some unknown plant, models of the banana and breadfruit, a piece of the stem of some ivy, grown here, which measures eighteen inches in circumference, and a portion of ancient papyrus on cardboard. I may here mention that any one who happens to have papyrus grow-

ing in a greenhouse tank, can very easily make paper from it if so disposed. I have succeeded in making some which exactly resembles that used by the Egyptians. If the stem is cut into six-inch lengths, the green bark sliced off, and the rest cut with a sharp razor into thin layers and placed on clean white paper, a row of the slices touching each other, continued to whatever length is desired, then another row placed over these transversely, leaving no gaps, and the whole pressed quickly between sheets of white glazed paper, it becomes a mass of thin pulp. The glutinous juice of the plant makes the separate pieces adhere, and if carefully lifted to fresh paper and well ironed until dry, the manufacture will be a success. If the pulp, covered by the paper above and below is placed between two sheets of millboard one can then stand upon it, and ensure its being well pressed. It can be written upon with an ordinary pen, without sizing or any further preparation.

With regard to fruits, I may mention that many curious specimens may be obtained by asking a fruiterer, when purchasing at some of the im-

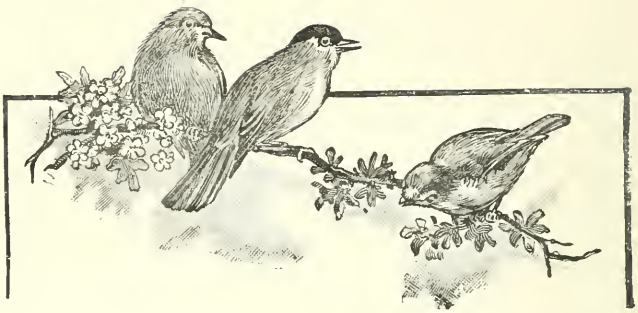
porters' warehouses, to reserve such things as the Brazil-nut as it is gathered, *i.e.*, a large woody fruit, containing from eighteen to twenty-four of the triangular nuts. Most people express surprise when told that the nuts grow in this kind of wooden box, as they are seldom sold in the outer case. The cocoa-bean grows in a similar manner, in a long, hard-shelled pod. It is possible in this way also to obtain from the importers of foreign fruits a cocoa-nut with its outer case on, beginning to grow, and sending out a green shoot. If the nut is planted in a large pot and kept in heat one may see the very interesting growth of a baby cocoa-palm, so beautifully described by Kingsley in his book, "At Last." Amongst the things sold by Whiteley are long stems of sugar-cane newly imported. These are worth possessing as showing the structure of grass on a large scale, but I would add a word of caution about handling the leaves. They are covered with minute spicules which, entering the pores of the skin, are apt to cause great pain and discomfort.

I think I have said enough to show how, in various ways, one may keep enriching one's collection. A visit to a new place always suggests

to my mind fresh chances of meeting with curios, and thus the possession of a home museum gives a pleasant interest to our walks, whether they are in town or country.

It may interest my readers if I give a short description of the picture of my museum and the articles shown in it. The little animal on the left was a charming Indian gazelle I obtained from Jamrach in the autumn of 1890. It was a tame and delightful pet, and seemed well and happy for a few months. As winter came on it was sheltered in the conservatory, warmly clothed, and well cared for, but the exceptional cold of that winter brought on lung disease, and to my regret it died. The Egyptian lizard, Rameses, is in the glass case on the table, behind the gazelle, and by it, is the beautiful bronze wing of an Egyptian goose, mounted as a screen. The flamingo standing by the door came from the banks of the Nile. The swan was for many years a tenant of my lake, but some cruel poacher shot the poor bird, and left it lying on the bank half dead. An albatross' head, given me by a grateful Cornish woman, hangs in the recess, and on the wall above are a grand pair of ox-horns from Calcutta. In the shelves at the

end of the room are geological specimens, and an interesting collection of foreign seeds and grains, of which I have spoken, as coming to me from Kew. Impey, the bat, hangs over my "skullery," and beyond the limits of the picture on that side of the room are the object-lesson case, and that containing medical specimens, seeds of palms and nuts. The carved gourd was sent from Sierra Leone, and next to it, the head, with its formidable jaws and rows of teeth, is that of a gavial, a kind of alligator found in the Ganges. The model of a church was made, and given to me by a Stanmore villager. Under a glass shade is a very perfect specimen of a wasp's nest, which was taken from the roof of a house in our village, and kindly sent to my museum. The square case at the far end of the billiard-table contains some interesting worked flints, celts, and curios from India, these with the ram's head, a pair of African sandals and Turkish slippers, a lizard, a Palestine sickle, and Bethlehem woman's striped dress, comprise the chief objects visible upon the table, and are most of them gifts from kind friends, of whom they are very pleasant mementos.



OBJECT LESSONS IN MUSEUM MAKING.

FOR those who are students of natural history there can hardly be a greater treat than a visit to the South Kensington Museum. It would take many visits to form even a general idea of such a vast collection. One may, of course, stroll through each gallery as hundreds of people do in all museums, merely glancing at the cases and seeing that one is filled with birds, and another with butterflies, but no intelligence is awakened, as one may gather by the blank stare, and the quick passing on to something else.

Such visitors leave the place no wiser than they came. A whole day given to one gallery would be all too little to enable one to learn fully about its contents; but a great deal might be enjoyed and much information carried away as the result of patient, thoughtful study of whatever single department of natural science we might choose.

There are excellent guide-books and catalogues of almost all the galleries, and others are in preparation. In these books we may find all needful information, and following the cases in order, catalogue in hand, we cannot fail to be struck with the thought and care which must have been given to the arrangement of the specimens so as to present them in consecutive order; the special beauty or interest connected with each thing being clearly shown, so that the dullest student cannot fail to learn anything he wishes to ascertain.

The Central Hall, with its grand skeleton of the cachelot or spermaceti whale, is one of the most attractive parts of the museum. It is an introduction to the other galleries, and ought to be well studied before we go further on. There are five bays on either side of it, and though not yet fully

completed, the collections in them are already invaluable to the young student of natural history.

The general guide-book gives a brief explanation of the aim and intention of the various preparations in these cases, but probably a special catalogue will be issued in time, so that the vast amount of information which can be gained from them may be made more available for young and unlearned visitors.

We will first take a glance at each of the eight cases in the centre, which contain interesting illustrations of various phases of development.

In the first case are grouped the many varieties of pigeons which have been derived by cultivation from the rock dove : fantails, pouters, jacobins, &c., dissimilar though they may be in form and colouring, being simply the result of cross-breeding and domestication.

In the second case on the right we see the plumage of the carrion and hooded crow. Each species exists in a certain geographical zone, and when they reach its confines they are apt to pair with each other, and the result appears in the parti-coloured birds here shown. The same thing seems also to occur in the case of goldfinches. By refer-

ence to the coloured maps placed in the case, the region where each species is found can be clearly traced.

The third case shows instances of melanism, *i.e.*, animals and birds jet black instead of their natural colour. Here are grouped a black leopard, hare, rabbit, squirrel, bullfinch, yellow-hammer, &c.

The fourth case contains instances of albinism such as a white squirrel, pheasant, jackdaw, blackbird and starling.

The fifth case is a miniature Egyptian desert, peopled with the animals and birds which are naturally found there, showing how exactly they resemble in colouring the yellow sandy rocks and stones amongst which they are found. The upper half of this case is devoted to instances of mimicry. Butterflies are shown so exactly resembling dead leaves that one has to look very closely to see which are the insects, on the spray of faded foliage on which they are arranged. The inner side of the wings is so brilliant in colouring that the butterfly could hardly escape from the pursuit of birds but for this remarkable provision for its protection. Caterpillars are shown as stiff

and straight as the twigs they simulate. Grasshoppers, too, brilliant scarlet in hue when flying, but grey as the rock on which they rest, when their wings are folded.

At this time, when the theory of "protective mimicry" is occupying the attention of naturalists more, perhaps, than any other, the young student will be anxions to see these specimens which make it easy for him to understand the basis of that theory. It was Mr. Bates who first started the idea that the curious resemblance which can be traced between some eatable and some uneatable butterflies, was designed to make hungry birds imagine that the former were the latter. Since then an enormous amount of material has been put together, with the view of establishing and extending this view of protective mimicry.

For instance, there will be found clear-wing moths and flies, of a perfectly unarmed kind, which seem closely to imitate the dangerous hornet, bee, or gnat.

Other resemblances seem intended to conceal, rather than to warn off enemies. There are very minute moths which resemble the droppings of

birds on leaves, and others which are so exactly of the same tint as the lichens on which they rest in the daytime, that it requires a very careful search to discover them.

When Virgil and other ancient writers speak of bees hatched out of animal carcases, there is no doubt that they were deceived by resemblances to bees in flies. Young collectors will find that this hypothesis of "protective mimicry" adds a charm to their personal collecting, but they must not be in quite so great a hurry as some very learned men have been in asserting that natural selection is responsible for those curious resemblances.

In the sixth case are animals and birds which are either habitually white, or become so in winter from the effect of extreme cold.

The seventh case shows adaptation of colouring to surrounding conditions, willow-grouse, ptarmigan, &c., with plumage harmonising exactly with the lichened ground in summer, and in winter turning white.

The eighth case shows variations of the plumage of different sexes of birds at various seasons. This is strikingly illustrated by the dainty little collars put on by the ruffs at their mating time.

Shall we now examine the recesses and see what they each contain?

The first bay to the left as we enter the Central Hall is devoted to skeletons of those creatures which possess a vertebra or backbone. We cannot fail to admire the exquisite whiteness of the preparations, and the care with which every bone in a baboon is arranged in its proper place in the body, with the name attached. This is truly an object lesson in anatomy, and near it are other skeletons, such as those of a bat, a sloth, an antelope, and a porpoise. In each of these one sees the modification of the osseous framework to suit the habits of the animal. In the bat the finger bones are immensely lengthened so as to admit of the delicate membrane being stretched out over them, by means of which the animal attains the power of bird-like flight.

In the case of the sloth the limbs are reduced to mere hooks, by which the creature hangs from the boughs of trees in which it passes its life.

The baboon's skeleton shows the animal walking on all four limbs, its hands as well as its feet planted flat upon the ground. The antelope is shown

standing on the tips of the toes of its slender feet. In the porpoise, the fore limbs are converted into paddles, and the office of the legs is performed by the tail.

One well versed in anatomy can easily guess by a glance at a skeleton what kind of life the creature is fitted for. There is a remarkable instance of this in the first discovery of the dinornis. Professor Owen had brought to him from New Zealand what was apparently an old marrow bone, about six inches in length, and rather more than two inches in thickness; and when he had carefully examined this unpromising fragment, he ventured to prophesy that it not only belonged to a bird, but to a bird that was unable to fly—a gigantic, wingless bird, far heavier than the ostrich; and he prophesied truly.

In the museum of the College of Surgeons stands the skeleton of the dinornis, and at its feet rests this old bone; while in the transactions of the Zoological Society for 1839, are the conclusions arrived at on the *old bone*, before the skeleton of the entire bird had arrived in England. How one would have liked to have had a glimpse of this huge bird

whose height is said to have been ten feet! One may form some idea of its majestic size from seeing the skeletons which will be found at the far end of the Paleontological Gallery, on the ground floor of this museum. There also may be seen the fossil eggs of an allied species, the æpyornis from Madagascar, each of which is said to hold about two gallons of water.

We have not yet noticed, in the first bay, the human skeleton and skull with every minute portion displayed and named, the foot of the lion showing the sheaths into which the claws can be retracted just as when our pussy makes her foot into a "velvet paw," and the interesting series devoted to the feet of the horse, showing how the original five fingers of the typical skeleton are modified into two in the ox, and only one in the horse's hoof.

The centre case in this bay contains specimens of teeth suited for eating fish, flesh, insects, and grass.

If we happen to have prepared the skull of a rat and seen the long curved sockets which contain the powerful incisors, then this case will delight

the student by showing much larger examples of the same plan.

SECOND BAY.

In this we find the various developments of skins, plates, horns and hair of animals. There are here shown some of the so-called flying animals which, by means of expansions of skin on either side, are able to sustain themselves in the air after the manner of a parachute.

The curious armadillo with its bony plates, a fine specimen of the porcupine, and instances of stiff outer coats of hairs covering a soft warm fur beneath are well shown in many examples. Various horns of oxen, goats, and antelopes are divided to show the interior formation.

Looking at the section of the ox-horns one shudders to think of the agony of suffering the animal must endure when its horns are sawn off near the skull, and then seared with a hot iron to stop the bleeding. This operation, called dishorning, has long been the custom in Scotland, and is justified on the plea that the long horned cattle injure each other when closely packed for transit. To some extent this may be true, but surely this

difficulty might be obviated by sawing off a short piece of the horn (not far enough to reach the tender core) and then affixing rounded tips which would effectually prevent the animal goring its neighbours. I earnestly hope the law will be so altered as to make this cruel practice entirely illegal.

A series of horns arranged on the wall, shows the annual growth and shedding of the antlers of the deer.

THIRD BAY.

This recess is full of interest to all bird lovers, for every part of a bird's structure may here be studied from exquisite examples of all kinds. The great albatross looks down with expanded wings, showing one of the grandest of our sea birds. The skeleton of an ostrich is contrasted with that of a tiny humming-bird, and the frigate bird, which possesses the longest wing-bones, is contrasted with the apteryx, which is really wingless, the bones being only rudimentary. The emu also has wings so small as to be practically useless.

In the centre case may be seen the various parts of birds admirably displayed. I would strongly urge all young people to learn the names given to

the different portions of the plumage of birds; such as the primary, secondary, and tertiary, series of wing-feathers, the tail-coverts, &c., the meaning of the cere and lore and other terms; then, in future, the descriptions of birds, in books of travel or observation, will be both intelligible and interesting.

After careful study of this special case, and making notes of the various names given, it might be found instructive to obtain a dead fowl with its feathers on, and identify each part according to the notes made, and any forgotten names can be ascertained by a second visit to the museum. I could linger long over this subject, so wonderful are the adaptations of beaks, bones, feet and feathers to the needs of each bird, but I hope I have said enough to induce many readers to go and see for themselves what I can but feebly describe.

It is scarcely necessary to go further in detail. My object is not to describe all that is to be found in each of these notable and richly-stocked departments, but to indicate to young collectors how they should use their eyes, and to supply a few hints to

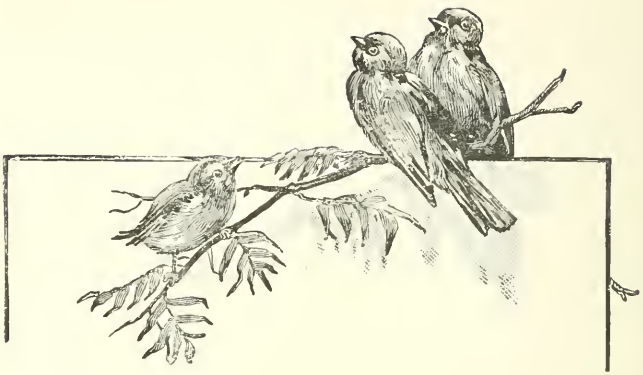
guide them in the path of observation. Hence I shall but briefly suggest that in the fourth bay they will find a perfect skeleton of a large snake, preparations showing the growth of a frog from the egg, through its varied changes, to the perfect form, and many specimens of reptilia.

In the fifth bay fishermen will find that all the parts of the tribes they pursue in sport can be fully studied, and the young collector will perhaps enviously gaze at the superb skeleton of a blue shark; but I go no further in even this modified detail.

Having started my naturalist in this delightful palace of the sciences, I leave him to himself. He must pass alone, from chamber to chamber, down corridor after corridor, until he discovers that sleeping princess, Knowledge, who is never found unless we industriously seek for her. All I can do is to point out the difference between languidly strolling with vacant face between the glass walls of our great museums, and passing eagerly with intelligent interest from one casket of recognised treasures to another.

The collection of natural objects in a home museum, however roughly and imperfectly carried

out, has at least this one great advantage, that it gives us the key to the mystery of museum-making and whatever may be the kind of treasures we obtain from various sources, it will be a never-ending pleasure to classify and arrange them after the perfect model given us in the Cromwell Road collections.



BOOKS OF FEATHERS.

I HAVE often thought that lovers of nature would like to be told of the great interest there is in making a collection of birds' feathers grouped artistically on the pages of a large album. Possibly such books have often been made, but I have never seen any except my own, and they seem always to give pleasure to young and old, and form a useful resource on wet days or at odd times when friends are needing something to chat about for half an hour. I will therefore describe

EAGLE OWL FEATHERS.

how simply they are made, in the hope that others will share my pleasure and learn, as I have done, many most interesting facts about the lovely plumage of birds.

The book should be a blank album of about fifty pages, eleven inches wide by sixteen, so as to make an upright page which will take in long tail feathers. Cartridge paper of various pale tints is best, as one can choose the ground that will best set off the colours of the feathers. Every other page may be white, and about three black sheets will be useful for swan, albatross and other white-plumaged birds.

The only working tools required are sharp scissors and a razor, some very thick strong gum arabic, a little water and a duster in case of fingers becoming sticky. One needs a clear space on a large table which will not have to be disturbed, as we shall see presently that the feathers must be carefully sorted if the group is to have a good effect.

Each page is to receive the feathers of only one bird ; then they are sure to harmonise, however you may combine them. Should any one wish to

experiment on this point let him place a green parrot's feather on the wild duck page, or mix pheasant's and guinea fowl's plumage, and note the jarring result. One learns a lesson as to the exquisite harmony of tints in bird plumage which would teach many a fashionable lady how to combine colours to the best advantage.

A common wood-pigeon is an easy bird to begin with, and readily obtained at any poulterer's. Draw out the tail feathers and place them quite flat in some paper till required ; do the same with the right wing and the left, keeping each separate and putting a mark on the papers that you may know which each contains ; the back, the breast, the fluffy feathers beneath—all should be neatly folded in paper and marked, and this can be done in the evening or at odd times, but placing the feathers on the pages ought to be daylight work that the colours may be studied. Now open the tail-feather packet, and with the razor carefully pare away the quill at the back of each feather ; this requires much practice, but at last it is quickly done and only the soft web is left which will be perfectly flat when gummed upon the page. When

PEACOCK FEATHERS.

all the packets are thus prepared (it is only the quill feathers that require the razor), then we may begin.

I will describe a specimen page, but the arrangement can be varied endlessly, and therein lies one of the charms of the work. One never does two pages alike—there is such scope for taste and ingenuity—and it becomes at last a most fascinating occupation. Towards the top of the page place a thin streak of gum, lay upon it a tail feather (the quill end downwards), and put one on either side. The best feathers of one wing may be put down, one after the other, till one has sufficiently covered the page, then the other wing feathers may be placed down the other side; the centre may be filled in with the fluffy feathers, and the bottom can be finished off with some breast feathers neatly placed so as to cover all quill ends. When one works with small plumage a wreath looks very pretty, or a curved spray beginning at the top with the very smallest feathers and gradually increasing in size to the bottom of the page.

Butterflies or moths made of tiny feathers add much to the effect, and they are made thus. Cut

out the shape of the butterfly in note paper and cover both sides with thick gum. When quite dry, moisten one wing and lay the small feathers on, like tiles on a house roof, one over the other, in any pattern desired; when the second wing is done lay a suitable feather along to form the body and let all become dry. Then moisten the gum on the under side and press the butterfly firmly on the page—the legs and antennæ can be added very delicately with a pen afterwards. I made a butterfly of the prismatic hues of the pigeon's neck, and placed it in the middle of the fluffy feathers of the pigeon page, where it looks charming. A small parrakeet may be shown in the act of flying if the page is large enough to take it in, but then great care must be taken to place the wing feathers as they would be in nature—the primaries, secondaries &c., in their right order, else the effect will be unnatural. The beak, eye, and legs must be painted on the page; a drop of gum on the eye will give brightness, only it must be very thick and allowed to become quite dry before closing the page. It is best, I find, to fill a wide-mouthed bottle with dry gum, and just cover the gum with water, allow it

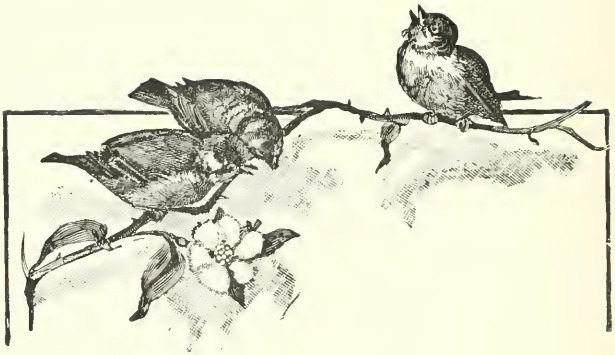
to melt, keep stirring and adding a few drops of water till just right—no bought liquid gum equals one's own preparation. In arranging a woodcock the two artist's feathers (one at the tip of each wing), should be specially shown ; they are small and very stiff, and are used in miniature painting. The tail should be reversed to show the lovely white satin tip to each feather—the only contrast nature has permitted to the exquisite russet browns of the rest of the plumage. To make the book complete there should be a careful water-colour study of the bird on the opposite page, its Latin and English name, and a drawing of the egg.

It may interest some to know how I obtained the ninety-one birds which fill my books. Some were the dried skins of foreign birds either given me by kind friends or purchased at bird-stuffers. The woodpecker and nuthatch were picked up dead in the garden. The dove and budgerigars were moulted feathers saved up until there were sufficient to make a page. Years after the death of our favourite parrot I found his wings had been preserved, so they appear as a memento of an old friend who lived as a cheery presence in my child-

hood's home for thirty years. *It is a pleasure to me to be able to say no bird was ever killed to enrich my books.* The birds used for food, supply an immense variety of kinds, such as wild ducks, pheasants, partridges, and all the species of wild fowl that can be purchased throughout the winter and spring would keep one busily occupied. Some birds have come to me in odd ways : I bought a heron which was hanging at a poulterer's in an out-of-the-way street in London ; I picked up a fine white barn owl in a wood in Cornwall, a dead gull at Brighton, and a guillemot on the beach at Bournemouth, and a still rarer find, was a stormy petrel lying near it—a bird only met with there once in two or three years.

It has often occurred to me that if sportsmen themselves could be induced thus to preserve the feathers of their victims they would be so struck with the beauty of their plumage, the adaptation of colour to the habitat of the bird, the winter changes of colour—as in the ptarmigan and others—that more thought would be given to these marvellous creatures, and in time a more tender feeling of pity might arise, and instead of the useless slaughter of uneatable birds which is so constantly going on,

the sportsman might in time be changed into the kindly naturalist who would love to watch the living bird and learn its ways and curious instincts —surely a far higher and more noble use of time and energy than simply levelling the murderous gun at every living thing that ventures within reach. This it is which effectually prevents our fauna ever being enriched by rare birds settling and breeding in England. It is touching to think that the little foreigners arrive again and again, weary from their long journey across the sea, always to receive the same inhospitable treatment. If only others felt as strongly on this subject as I do they would be ashamed to appear in the newspapers as murderers of rare specimens. I earnestly wish each such notice could bring down the severest censure on the so-called sportsmen. As a member of the society I would urge Selbornians to have the courage to boldly express their opinions on this matter, we may thus be able to gradually create such a reaction that, instead of being pained by such tales of cruel slaughter as in the case of the gannet massacre, we may be gladdened by reading of rare birds, *noticed*, *let alone*, and breeding in various places.



STUDYING INSECTS.

HAVING found much that was interesting in the life histories of my sacred beetle, tegenaria, and earwig, I feel sure that many young people would like to try and keep insects as pets if only they knew *how* to keep them, what to feed them with, and in what way to make them happy in confinement. My natural history studies can only be pursued in the intervals of an otherwise busy life, else, if time permitted, I should find the taming of insects a most fascinating occupation.

It only needs time and patience and a little knowledge of insect character to enable any one to win, first the attention, then the interest, and finally the affection of many of the curious creatures which abound in our fields and gardens.

Sir John Lubbock's tame wasp is a curious instance of the power of kindness in developing both confidence and intelligence, and the following anecdote from Jesse's "Gleanings" shows the same result from feeding and tending house flies.

"At the latter end of autumn, when flies were becoming almost helpless, a gentleman, wishing to try if they could be tamed, selected four from the breakfast table, put them upon a large handful of cotton wool, and placed it in one corner of the window nearest the fireplace. Not long afterwards the weather became so cold that all flies disappeared except these four, which constantly left their bed of cotton wool at his breakfast time, came and fed at the table, and then returned to their home.

"This continued for a short time, when three of them became lifeless in their shelter, and only one came down.

"This one the gentleman had trained to feed upon his thumb-nail by placing on it some moist sugar mixed with a little butter. Although there had been at intervals several days of sharp frost, the fly never missed taking his daily meal in this way till after Christmas, when his kind preserver having invited a friend to dine and sleep at his house, the fly, the next morning, perched upon the thumb of the visitor who, being ignorant that it was a pet of his host's, accidently killed it, and thus put an end to the experiment."

There are endless books on natural history most ably written by those who, having given long years of patient study to the subject in all its branches, are well qualified to give us information. From these books we may learn about the structure, the habits, and the uses of living creatures of every kind, but as yet I have failed to light upon a work that supplies full and clear directions as to the best mode of studying insects in captivity, in what kind of cage or place they should be kept in order to preserve them in health, how each kind should be fed, and other particulars needful to their welfare.

Such a book would, I feel sure, be heartily welcomed by many intelligent young people who would find the greatest interest in keeping some of the curious insects they may obtain in the country. Until such a work appears, perhaps I may be permitted to supply a few notes on the subject from my own experience.

My tame butterflies [1] were delightful pets, coming on my finger for their daily drop of honey, and when I took them into the garden they would enjoy short flights to and fro, and yet they were quite willing to come on my hand and return to their cage. The chrysalids of these swallow-tail butterflies can be obtained from various naturalists in London and elsewhere, who will always supply lists of the pupæ of such moths and butterflies at they can obtain. The huge Japanese moths can be obtained in this way.

Their cocoons yield the material of which the lovely Japanese silks are made. They are grand insects, well worth keeping; one of them, the great atlas moth, measures eight and a half inches across the wings. I happened to visit the insect house at

[1] See "Wild Nature Won by Kindness," pp. 173–177.

the Zoological Gardens on a day when one of these magnificent moths was to be seen in its full beauty. It had only emerged from its chrysalis a short time before, so it had not brushed away a single scale from its wings. I was indeed fortunate to see it thus, for after a night has passed, the insect loses its fresh beauty and mars its perfectness by incessant fluttering up and down the sides of its prison house.

When chrysalids of any kind are obtained they should be placed in a large tin box on some green leaves or moss, which may be changed every week to keep up a slight degree of dampness, else the skin of the chrysalis may become so hard and dry as to prevent the butterfly emerging. For this reason the box is best kept in a room without a fire. Some sticks should be placed upright in the box, as the butterfly requires something to crawl upon when first hatched, that its wings may be free to expand. It is very curious to see the feeble creature come out of its case and creep on to a twig; there it hangs, and one may see the wings growing and becoming quite puckered as a liquid seems to go through the veins, enabling

them to expand to their full size. Then they become flat and even, and in an hour or two they dry, and are strong enough for flight, and the beautiful creature is ready to begin its aerial life. A piece of net should be tied over the box, else the insect may hatch out in the early morning and escape. These winged pets must be absolutely undisturbed until their wings are firm and strong, else, if touched, they will be crippled and never unfold properly.

An insect house can easily be made by putting four upright pieces of wood at the corners of any ordinary box and arranging some mosquito net to cover them, leaving one side so that it can be opened when desired.

A glass globe, or a propagating glass reversed may be adapted for the purpose. My own case is a more permanent one, and has proved extremely useful for a variety of purposes. It is a zinc box a foot square and three inches high; an inch of perforated zinc above allows plenty of ventilation, and above the perforation are the glass sides, twelve inches by ten, fitted into four grooved uprights, so that any side can be slipped out or in

if required. From time to time this case has had various tenants—a mole, a field-mouse, dormice, grasshoppers, &c.; just now it has foreign chrysalids reposing on green moss, and when the insects hatch they will be conveniently seen through the glass sides.

If the moths we hatch are to be specimens in a case, then before night they must be consigned to a poison bottle, in which is cyanide of potassium,[1] which will kill them in a moment or two, ready for setting on a sheet of cork. If, on the contrary, we wish to study the insects alive, our aim must be to feed and make them happy in captivity. When a drop of honey is held near a butterfly or moth it at once detects the scent of it and begins to uncoil its long proboscis and insert it in the sweet food. These insects have no mouth, but are provided with this long tube with which they suck honey from the flowers. When not in use the proboscis is coiled up into a wonderfully small space.

By daily feeding, our winged pets soon become tame, and will readily come on the hand and

[1] These poison bottles may be purchased from chemists or naturalists.

WATER INSECTS.

be on friendly terms with their keepers. It is well to keep a little vase of flowers in the case with the butterflies as they afford a resting place for them, and the scent is congenial to their tastes.

THE GREAT WATER BEETLE.

(*Hydröus Piceus.*)

THIS insect can be obtained from any professional naturalist, and will very soon become tame enough to take food from the hand. A pair (male and female) are best kept in a globe of water by themselves, with sand at the bottom and growing water-weed anchored to a stone.

The natural food of these beetles appears to be vegetable, as they eat anacharis and other plants, but they also like small insects and will not refuse little morsels of raw meat. These, if not wholly consumed, must be removed with a small net, else they will corrupt the water. An allied species of water-beetle, kept by an American lady, was observed to seize a wasp and, taking it beneath the shelter of some weed, it cut off the wasp's

wings and legs, then sucked the juices of the head and thorax, and after turning them adrift it grasped the body and held the part that had been cut from the thorax to his mouth, drawing in the contents exactly as if drinking from a bottle.

A curious provision is given to the female of this species of beetle, namely, a spinning apparatus in her tail, with which she constructs a round cocoon tapering up to a point like a glass retort. In this nest she places fifty or more eggs and fastens it to the stem of some water plant. In a few weeks' time the young larvæ are hatched and appear as small grubs. Like the perfect beetles, they breathe through the tail, so they are compelled to rise frequently to the surface to take in air. The beetles carry air down with them when they dive, it may be seen like a silver bubble at the end of the wing cases.

It would be interesting to watch the mother beetle making her cocoon, and possibly a pair of these insects, kept quietly by themselves in a globe, might be led to make their family nest.

A similar but smaller water beetle, *Dytiscus Marginalis*, has many points of interest. These creatures are great eaters, one having been known to

devour a small frog and several little fishes in the course of twenty-four hours. They can be kept and tamed, and will learn to know a signal and come to be fed with raw meat, like those previously described. The male of this beetle has a very curious pad on the first pair of legs. The surface of each pad is covered with suckers like those of the cuttle-fish, and by means of these the beetle can anchor itself beneath the water. The female may be known by the ridges on its wing cases. The dytiscus possesses a pair of fine gauzy wings beneath its elytra with which it can fly far and wide. I found a large specimen in the bird's rustic bath outside the dining-room. It had dropped into the shallow trough on its back and was spinning round and round quite unable to right itself.

GROUND BEETLES.

(*Carabus Violaceus.*)

THESE beetles may readily be found lurking under large stones or tree roots. They are long-lived and easily made so tame as to come for a

piece of scraped raw meat held to them at the end of a piece of stick.

Thirteen British species are known. *C. Violaceus* is one of the commonest kinds. It is about an inch long, of a deep lovely violet colour with a tinge of green, and so polished as to look like burnished metal. Some garden mould, a few stones, and damp moss placed in a tin box will suit the beetle's requirements. It will need daily feeding, for the creature has a voracious appetite, and is therefore extremely useful in the garden, ridding us of many destructive insects. One species, *C. Auratus*, which is plentiful in France, is most valuable to the farmer as it seeks out and eats the eggs of the cockchafer, thus preventing great damage which would otherwise be done to the crops by the grubs of that destructive insect.

Some day I hope to obtain a specimen of *Brachinus Explodens*, better known as the bombardier beetle, so named because it posseses the remarkable power of ejecting a kind of fluid which explodes with a slight noise almost like a miniature gun.

The bombardier resorts to this expedient as a

means of defence ; when pursued by a carabus it discharges volatile fluid from the end of its body, and thus frightens his foe and compels him to give up the chase. I confess I should much like to see this explosion, but as the beetle is usually found on the banks of tidal rivers and under stones in very damp places I fear I am hardly likely to meet with a specimen.

I read in Wood's "Insects at Home," that "they are found in greatest numbers below Gravesend, and ten or twelve may sometimes be seen under a single stone, firing off their artillery when deprived of their shelter."

THE ROSE BEETLE.

(*Cetonia Aurata.*)

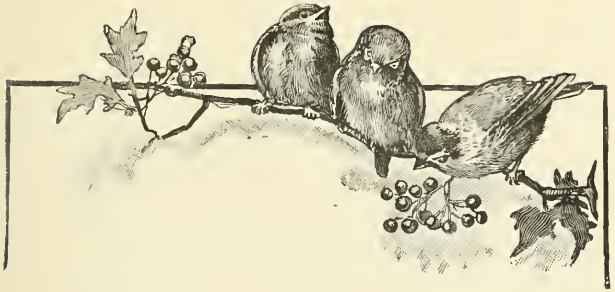
THIS is one of the most attractive beetles to keep as a pet. It is often to be found in full-blown roses, also on carrot blossom and other umbelliferous plants, and one summer, many years ago, I caught hundreds of them on rhododendron flowers, which they were utterly ruining by biting the petals into small fragments.

I do not usually capture more than the specimen

insect I wish to study, but in this case it seemed needful to reduce the immense numbers of these insects, else the beauty of our garden would have been greatly interfered with. The beetles were killed instantly with boiling water, and their brilliant wing-cases were retained to form the banner-screen I have already described.

This rose-chafer has been kept in captivity upwards of three years, being fed on fruit and moistened white bread. Some earth covered with moss, and a growing plant in a little pot for the beetle to climb about and rest upon, suits its needs. One might try experiments with this and other beetles as to what kind of food it preferred, and thus one's knowledge about their habits would be increased. I have not had time, personally, to watch and keep any beetles in captivity except the Egyptian scarab and water beetles, I can, therefore, only give general hints as their treatment, leaving young students to exercise their ingenuity in contrivances for the welfare of other species. Nor am I writing a history of these insects, but simply suggesting a few of the commoner kinds which may be easily obtained for purposes of study or amusement.

DIVING-BELL SPIDERS.



STUDYING INSECTS.

II.

DIVING-BELL SPIDERS.

(*Argyroneta Aquatica.*)

I ADVISE young students to procure a pair of these most interesting creatures. They can easily be kept, even in a glass pickle-jar, if a globe is not attainable. Some washed sand and small gravel at the bottom of the jar, and a few stems of anacharis tied to a stone and anchored in the sand will form a suitable home. A piece of net should be tied over the top, else the spiders

will possibly creep away, they being quite at home on land as well as water. After a few hours, these curious creatures will spin a kind of cell of fine silk, either on the surface of the water or amongst the weed. They have the power of carrying down air, with which they fill the cell, making it look like a silver bubble, and within this fairy home the spider lives, coming out from time to time to obtain more air, or to seek for flies and other insects.

The first pair I ever possessed came to me in the winter, and I was sorely exercised as to their diet. We had not seen flies for months, and a careful search through the greenhouses only yielded three gnats and a half-starved blue-bottle. The spiders did not seem to take to raw meat, though various writers spoke of it as suitable food for them. At last I thought of searching in the wine-cellar, and there, upon the walls, were thousands of gnats; and as I found they were quite acceptable to the spiders, I felt relieved of the food difficulty.

I cannot help wondering how those gnats exist, and what *they* feed upon; they were in good con-

dition, and though quiescent, they were not hibernating, for if touched they flew away. That the same insect should be able in some cases to gorge itself with human blood, and, in other circumstances, live absolutely without food is one of the puzzles I am often coming across in the study of nature; some day I may meet with a *savant* who may enlighten me upon the point.

With a pocket lens one may see the bright eyes of the spider, and watch it when it rises to the top of the jar to take in fresh air.

GNATS.

WHEN it is not practicable to obtain sea or fresh-water creatures as subjects for study, the larvæ of the common gnat may usually be found in a garden water-butt, and easily kept, if desired, in any clear glass vessel filled with rain-water and placed on a window-ledge.

Many interesting things can be related about them. If a child is shown a small gnat flying across the room, and is then told that these little "jerky" creatures in the glass will one day have

wings and fly about in the same way, the child is filled with wonder, and questions will follow quick and fast, which, it may be, wiser heads will be puzzled to answer.

If we look on the surface of the rain-water tub, we shall probably see small grey masses of eggs, which have been laid there by the female gnat about July or August. These eggs seem glued together, and float on the water like little rafts. After a time the lower end of each egg falls out, and the tiny larvæ drop into the water and begin the first stage of their life there.

The little jerking atoms can easily be caught in a fine muslin net, and transferred to a glass jar or pan, where they may be watched daily increasing in size, and shedding their skins several times until they change into the pupa state. They now eat nothing, their bodies are curved instead of straight, the head much enlarged, and for the most part they rest quietly on the surface of the water, breathing through two little horns which project from the thorax. The larvæ, on the contrary, keep their heads downwards, as they breathe through an air-tube in the tail. The little pupæ

can dive swiftly if alarmed; but as they must have air, they return quickly to the surface.

In about four weeks' time the skin of the pupæ cracks; and if one is fortunate enough to be watching at the right moment, it is very interesting to see the delicate feeble-looking gnat creeping out of its case, balancing itself on the edges of its former skin, until its wings are dry and fit for flight. Now is the critical moment in a gnat's life; if a breath of air tilts the old skin on one side, and the gnat is thrown into the water, its wings become wet and useless, and it is sure to be drowned. The number of dead gnats to be seen in a water-butt shows that the first flight is very often unsuccessful. But if with dry wings, the gnat can take a spring into the air and leave its old cradle without accident, then its new life begins, and it only returns to the water once more to deposit its raft of eggs and perpetuate its species. A muslin cover should be kept over the jar, else the gnats may become very annoying tenants of our rooms.

GRASSHOPPERS.

THERE is a large green grasshopper which is

known as *Acrida Viridissima*, a really beautiful creature, occasionally to be met with on the branches of trees. This I have found a tameable pet; but it is many years since I have kept a specimen, and though ordinary grasshoppers feed on grass, I cannot feel sure as to the diet of the larger species. If the branches of trees are searched towards the end of summer, this insect may probably be found. The best plan to obtain the grasshopper is to hold a large butterfly-net underneath, and give the branch a jerk or two, then whatever insects may be upon it will fall into the net. Grasshoppers and crickets of all kinds are desperate fighters, and must be kept singly if we would have perfect insects. I well remember my first experience with these creatures many years ago at Chamouni.

It was a brilliant morning, and I was tempted to go part of the way up the Brevent. Passing through a little patch of ripening corn, I was almost deafened with the noise of grasshoppers; there seemed to be one on every blade of corn, and such monsters, too! I brought back a couple of them, and placed them under a tumbler on the

breakfast table. Whilst watching them, to my distress I saw one walk up to the other and calmly bite his leg off. Of course I separated them; but this savage conduct put an end to my project of filling a little cage with them to take home as live curios to be studied at leisure. I could only preserve them as dead specimens to add to my insect case. When properly set, their wings were four inches across, enabling them to fly like birds, which they really resembled at a little distance.

At Avranches, in Normandy, I found bright red and blue grasshoppers, which flew very swiftly and made a loud clattering noise with their wing-cases when in flight. On alighting they instantly close up the bright-coloured gauzy wings under their brown wing-cases, so that they seem to disappear in a marvellous way, and unless you happen to mark exactly where they alight, it is almost impossible to catch them.

A specimen of the migratory locust was picked up alive at Worthing years ago, and sent to me; it lived about a week, eating grass very readily with its powerful jaws. It measured five inches across its expanded wings, and the body was two

inches long. One could well imagine the terrible devastation thousands of these insects would cause, and how quickly every green thing would disappear before them. It Italy crickets are kept in little cages, the people being partial to their chirruping note. Even there they only put one insect in each cage, as their maiming propensities are the same as grasshoppers'.

For many years I vainly endeavoured to obtain live mole-crickets. From the drawings of them in books, they appeared most curious, and unlike any other insect. At length a relative obtained some at Florence. About a dozen were brought in a pickle-bottle full of earth, in which they burrowed and, alas! fought, until only three were left alive. These reached me safely, and were consigned to a large case, where I hoped they would live and let live, and perhaps increase in numbers. They are curious, unwieldy creatures, with horny paws, shaped and placed just like the fore feet of the mole, and they use them in the same way, diving down through the soil when alarmed. I managed to keep these crickets alive for several months, with a varied animal and vegetable diet, even sacrificing

a hyacinth bulb now and then to give them an extra treat, as I had read that in Holland they are terrible plagues to the bulb growers, destroying quantities of valuable gladiolus and other bulbs.

Being subterranean dwellers, I could see but little of them; they made burrows in the moss and earth, and scuttled about in the evening, ate their food, but would not grow tame or respond to my efforts to show them kindness. At length they appeared with maimed legs and evidences of warfare. Two were killed in battle; and though the survivor lived for some weeks, he at last succumbed to his injuries. The result of my experience is, that only one specimen can be safely kept, and the most amenable of the various species is, I think, the large green grasshopper first mentioned. Italian fire-flies have sometimes been sent to me by post, and if kept in a globe and fed daily with honey and water, they will live for some weeks, and charm us with their exquisite intermittent flashes of light.

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